AKASH AGARWAL CLASSES

EDUCATION IS POWER

CMA INTER (G2 PAPER-12)

FINANCIAL MANAGEMENT VOLUME 2

HIGHLIGHTS OF THIS BOOK:

- EXHAUSTIVE COVERAGE OF MODULE
- COMPLETE COVERAGE OF NEW SYLLABUS
- BOTH THEORY AND PRACTICAL ARE INCLUDED
- SIMPLE AND CONCISE LANGUAGE
- STEPWISE PRESENTATION AND SUPPORTING CALCULATIONS IN THE FORM OF WORKING NOTES
- LOGICAL ARRANGEMENT OF TOPICS

APPLICABLE FOR JUNE 25 AND ONWARDS EXAMINATION

AS PER NEW SYLLABUS 2022

CA SHRUTI AGARWAL

PAPER -11 FINANCIAL MANAGEMENT

INDEX

VOLUME-2

An investment in knowledge pays the best interest

CHAPTER 1A- FINANCIAL RATIO ANALYSIS

• Financial Ratio Analysis

Ratio analysis is the process of determining and interpreting numerical relationships based on financial statements. A ratio is a statistical yard stick that provides a measure of the relationship between variables or figures. This relationship can be expressed as percent (i.e., cost of goods sold as a percent of sales) or as a quotient (i.e., current assets as a certain number of times the current liabilities).

As ratios are simple to calculate and easy to understand there is a tendency to employ them profusely. While such statistical calculations stimulate thinking and develop understanding there is a danger of accumulation of a mass of data that obscures rather than clarifies relationships. The financial analyst has to steer a careful course. His experience and objective of analysis help him in determining which of the ratios are more meaningful in a given situation.

Ratios are used by the (i) Owners or investors; (ii) Creditors; and (iii) Financial executives. Although all these three groups are interested in the financial conditions and operating results of an enterprise the primary information that each seeks to obtain from these statements is to serve. Investors desire a primary basis for estimating earning capacity. Creditors (trade and financial) are concerned primarily with liquidity and ability to pay interest and redeem loan within a specific period. Management is interested in evolving analytical tools that will measure costs, efficiency, liquidity and profitability with a view to making intelligent decisions.

• Objectives of financial ratio analysis

The importance of financial ratio analysis lies in the fact that it presents data on a comparative basis and enables the drawing of inferences regarding the performance of the firm. Ratio analysis helps in concluding the following aspects:

(i) Liquidity Position: Ratio analysis helps in determining the liquidity position of the firm. A firm can be said to have the ability to meet its current obligations when they become due. It is measured with the help of liquidity ratios.

(ii) Long-term Solvency: Ratio analysis helps in assessing the long-term financial viability of a firm. Long-term solvency measured by leverage/capital structure and profitability ratios.

(iii) Operating Efficiency: Ratio analysis determines the degree of efficiency of management and utilization of assets. It is measured by the activity ratios.

(iv) Overall Profitability: The management of the firm is concerned about the overall profitability of the firm which ensures a reasonable return to its owners and optimum utilization of its assets. This is possible if an integrated view is taken and all the ratios are considered together.

(v) Inter-firm Comparison: Ratio analysis helps in comparing the various aspects of one firm with the other.

• Significance of financial ratio analysis

(i) Commercial bankers and trade creditors and the institutional lenders are mostly concerned with the ability of a borrowing enterprise to meet its financial obligations timely. As a result, they are most interested in ratios like the current ratio, acid test ratio, turnover of receivables, inventory turnover, coverage of interest by level of earnings, etc.

(ii) Long-term creditors would be interested in the working capital position of the borrower as an indication of ability to pay interest and principal in case earnings decline. So, they are interested in the ratios of total debt to equity, net worth to total assets, long-term debt to equity, long-term debt to net working capital, fixed assets to net worth, fixed assets to long-term debt, fixed debt to capitalization etc. The number of times fixed charges are covered by earnings before interested and taxes will be of particular interest for such long-term creditors.

(iii) Investors in shares are primarily interested in per share ratio like earnings per share, book value per share, market price per share, dividends per share, etc. They would also be interested in knowing the capitalization rate (EPS Ratio = Earnings per share/ Price per share) which is the reciprocal of P/E Ratio (Price/ Earnings ratio) and also the dividend yield, i.e.; D/P Ratio.

• Advantages of financial ratio analysis

Ratio analysis is useful in assessing the performance of a firm in respect of the following purposes:

(i) To measure the liquidity position: The purpose of ratio analysis to measure the liquidity position of a firm. Whether the firm is able to meet its current obligations when they become due or not? A firm can be said to be liquid, if it has sufficient liquid funds to pay the interest charges on short-term debt within a year. The liquidity ratios are useful in credit analysis by banks and other financial institutions.

(ii) To know the solvency position: Ratio analysis is helpful for assessing the long-term financial liability of the firm. The long-term solvency is measured through the leverage, and profitability ratios. These ratios reveal the strengths and weaknesses of a firm in respect of the solvency position. The leverage ratios indicate the proportion of various sources of finance in the firm's capital structure, particularly the ratio of debt and equity share capital.

(iii) Operating efficiency or turnover of the firm: The ratios are helpful in measuring the operating efficiency or the turnover of the firm. These ratios indicate the efficiency in utilizing the assets of the firm such as fixed assets turnover ratio, total resources turnover ratio etc.

(iv) To assess the profitability position of the firm: The ratios are useful to assess and measure the profitability of the firm in respect of sales and the investments. These ratios are concerned about the over –all profitability of the firm.

(v) Inter - firm and intra – firm comparison: Ratios are not only reflecting the financial position of a firm, but also serves as a tool for remedial actions. This is made possible only due to inter-firm comparison. This would demonstrate the relative position of the firm vis-á-vis its competition. If there is any variance in the ratios either with the industry average or with, those of competitors, the firm has to identify the reasons and would take remedial measures.

(vi) Trend analysis: The trend analysis of ratios indicates whether the financial position of a firm is improving or deteriorating over the year. The significance of a trend analysis of ratio lies in the fact that the analysis can know the direction of movement whether the movement is favourable or unfavourable. Thus, ratio analysis is considered better than a mere comparison of figures in carrying out an over – all appraisal of a company's business.

- **Disadvantages of financial ratio analysis**

(i) It is always a challenging job to find an adequate standard. The conclusions drawn from the ratios can be no better than the standards against which they are compared.

(ii) It is difficult to evaluate the differences in the factors that affect the company's performance in a particular year as compared with that of another year and that of another company. The task becomes more difficult when comparison is made of one company with another when they are of substantially different size, age and diversified products.

(iii) While making comparisons of ratios, due allowance should be made for changes in price level. A change in price level can seriously affect the validity of comparisons of ratios computed for different time periods and particularly in case of ratios whose numerator and denominator are expressed in different units of currency.

(iv) Comparisons are also become difficult due to differences in definition. The terms like gross profit, operating profit, net profit etc. have not got precise definitions and there is considerable diversity in practice as to how they should be measured.

(v) A balance sheet may fail to reflect the average or typical situation, as it is prepared as of one moment of time. It ignores short-term fluctuations in assets and equities that may occur within the period covered by the two Balance Sheet dates.

(vi) Various differences are found among the accounting methods used by different companies which variously affect the comparability of financial statements. Methods of recording and valuing assets, write-offs, costs, expenses etc. differ from company to company.

(vii) As ratios are simple to calculate and easy to understand, there is a tendency to over-employ them. While such statistical approach stimulates thinking, it is also likely to lead to the accumulation of a mass of data; if due care is not taken, that might obscure rather than clarify relationships.

- **Standards for Comparison**

For making a proper use of ratios, it is essential to have fixed standards for comparison. A ratio by itself has very little meaning unless it is compared to some appropriate standard. Selection of proper standards of comparison is most important element in ratio analysis. The four most common standards used in ratio analysis in Financial Management are: absolute, historical, horizontal and budgeted.

(i) Absolute: Absolute standards are those which become generally recognized as being desirable regardless of the type of company, the time, stage of business cycle and the objectives of the analyst.

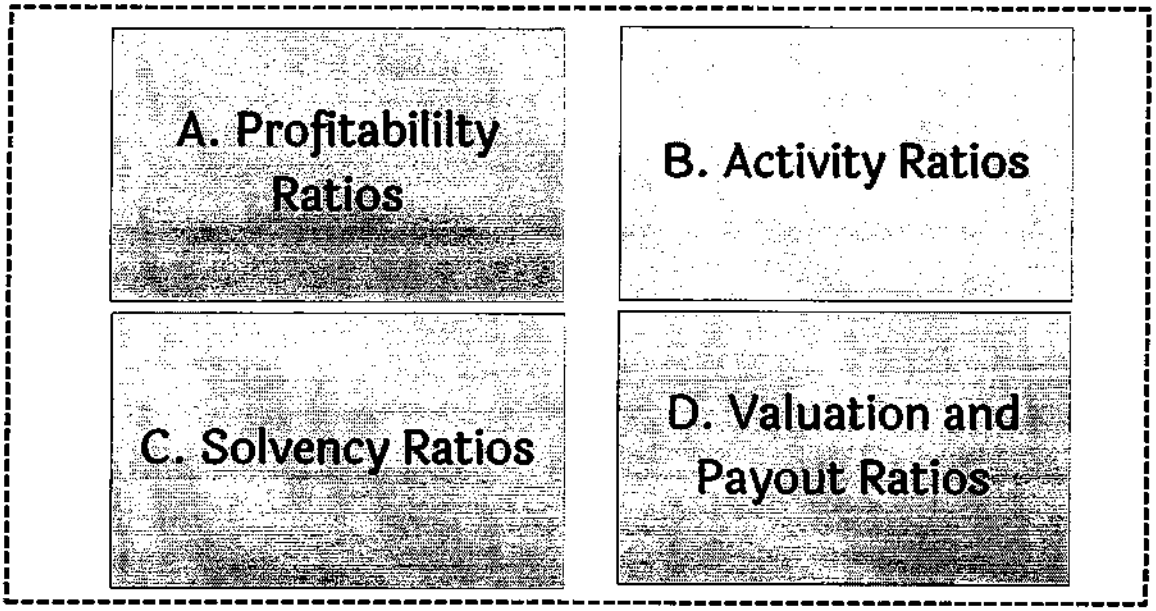
(ii) Historical: Historical (also known as internal) standards involves comparing a company's own past performance as a standard for the present or future. But this standard may not provide a sound basis for judgment as the historical figure may not have represented an acceptable standard. It is also called as intrafirm comparison.

(iii) Horizontal: In case of horizontal (external) standards, one company is compared with another or with the average of other companies of the same nature. It is also called as inter-firm comparison.

(iv) Budgeted: The budgeted standard is arrived at after preparing the budget for a period. Ratio developed from actual performance are compared to the planned ratios in the budget in order to examine the degree of accomplishment of the anticipated targets of the firm.

• Classification of Ratios

In view of the requirements of the various users of ratios, we may classify them into the following important categories:



A. Profitability Ratios

These ratios give an indication of the efficiency with which the operations of business are carried on. The following are the important profitability ratios:

	Ratio	Formula	Numerator	Denominator	Significance
1	Gross Profit Ratio	Gross Profit / Sales	Gross Profit as per Trading Account	Sales net of returns.	Indicator of basic. Profitability.
2	Operating Profit Ratio	Operating Profit / Sales	Sales – Cost of Sales (Or) Net Profit as per P & L Account (+) Non –Operating Expenses (e.g Loss on Sale of asset, Preliminary Expenses written off, etc.) [See note 2] (-) Non – Operating Incomes (e.g. Rent, Interest & Dividend received)	Sales net of returns.	Indicator of Operating Performance of business.

3	Net Profit Ratio	$\frac{\text{Net Profit}}{\text{Sales}}$	Net profit as per P & L A/c (either before tax or after tax, depending upon data).	Sales net of returns.	Indicator of overall Profitability
4	Contribution Sales Ratio or PV Ratio	$\frac{\text{Contribution}}{\text{Sales}}$	Sales less variable costs.	Sales net of returns.	Indicator of Profitability in Marginal costing.

Notes :

1) All the above ratios are expressed in percentage. The higher the ratio, the better it is for the business.

2) Depreciation is generally as an Operating Expenses (Note: Operating, but Non – Cash Expenditure).

3) Operating Ratio or Operating cost Ratio = $\frac{\text{Operating Cost}}{\text{Sales}}$

=100% - Operating Profit Ratio.

For the purpose, Operating costs = Materials + Labour + POH + AOH + SOH + Depreciation.

d) Coverage Ratios – Ability to serve Fixed Liabilities

	Ratio	**Formula**	**Numerator**	**Denominator**	**Significance**
1	Expenses Ratio				
a.	Cost of Goods Sold Ratio	$\frac{\text{COGS}}{\text{Net Sales}}$	Opening stock+ production-closing stock	Sales – return inwards	Determination of cost for goods sold.
b.	Operating Expenses Ratio	$\frac{\text{Operating Exp.}}{\text{Net Sales}}$	Administrative Expenses + Selling Expenses	Sales – return inwards	
c.	Administrative Expenses ratio	$\frac{\text{Admin Expenses}}{\text{Net Sales}}$	All admin. Related expenses such as Generally, Rent , insurance, salaries and benefits to employees, office supplies, etc.	Sales – return inwards	Determination of expenses incurred for administration in relation to sales
d.	Selling Expenses Ratio	$\frac{\text{Selling Expenses}}{\text{Net Sales}}$	Includes wages, commission, out-of-pocket expenses	Sales – return inwards	Determination of expenses incurred

					for selling in relation to sales

financial expenses but excludes taxes, dividends and extraordinary losses due to theft of goods, good destroyed by fire and so on.

	Ratio	Formula	Numerator	Denominator	Significance
1	Return on Investment (ROI) or Return on Capital Employed (ROCE)	Pre-Tax ROCE- $\frac{\text{EBIT}}{\text{Equity + Debt}}$ Post-Tax ROCE $\frac{\text{EAT + Interest}}{\text{Equity + Debt}}$	Pre-tax or Post-tax ROCE may be used Pre-tax ROCE is generally preferred. Sometimes, Post-tax ROCE is computed using [EBIT x (1- Tax)]	Capital Employed = Investment = Equity + Debt	Overall profitability of the business on the total funds employed
2	Return on Equity (ROE) or Return on Net Worth (RONW)	Pre – Tax ROE- $\frac{\text{EBT}}{\text{Equity}}$ Post-Tax ROE – $\frac{\text{EAT}}{\text{Equity}}$	Either Pre-Tax or Post- Tax ROE may be computed. Post – tax ROE is generally preferred for analysis purpose.	Equity or Net worth or Shareholder's funds or owners funds or own funds	Indicates Net Income per rupee of Average Total Assets or Tangible or Fixed Assets.
3	Return on Assets (ROA) Note 3	Pre-Tax ROA $\frac{\text{EBT}}{\text{Average Total Assets}}$ Post-Tax ROA $\frac{\text{EAT}}{\text{Average Total Assets}}$	Pre-Tax or Post-Tax ROA may be taken. Pre-Tax ROA is generally preferred for analysis purposes. Sometimes, (EAT + Interest) is used.	Average, i.e. ½ of opening & closing balances of any of the following items- Total Assets or Tangible Assets or Fixed Assets	Indicates Net Income per rupee of Average Total Assets or Tangible or Fixed Assets.
4.	Return on Net Assets (RONA):	$\frac{\text{EBIT(1-t)}}{\text{Total Assets}}$ (post-tax RONA) $\frac{\text{EBIT}}{\text{Total Assets}}$ (pre-tax RONA)	Many analysts used to prefer net assets instead of total assets as denominator of the ratio. Net assets are equal to the total assets minus current liabilities.	Current assets+ fixed assets.	

5.	Fixed Charges Cover Ratio (FCCR)	$\frac{\text{EBIT}}{\text{Interest}}$	Sales – variable cost-fixed cost	Debt × interest %	It indicates whether the business would earn sufficient profits to pay periodically the interest charges. Higher the ratio, better it is.
6.	Pay-out Ratio	$\frac{\text{DPS}}{\text{EPS}}$	DPS as per (7) above	EPS As per (8) above	% of EPS paid out, & balance retained
7.	Dividend per Share (DPS)	$\frac{\text{Total Equity Dividend}}{\text{Number of Equity Shares}}$	Profits distributed to Equity Shareholders.	As per (8)	Profits Distributed per Equity share
8.	Earnings per Share (EPS)	$\frac{\text{Residual Earnings}}{\text{Number of Equity Shares}}$	Residual Earnings, i.e. EAT (-) Preference Dividend	Number of Equity Shares outstanding = Equity Capital Face Value per Share	Income per share, whether or not distributed as dividends.
9.	Dividend Yield (%) Note 1	$\frac{\text{Dividend}}{\text{Market Price per Share}}$	Dividend	Average MPS (or Closing MPS) as per stock exchange quotations.	True Return on Investment, based on market value of Shares.
10.	Return on Equity (ROE) or Return on Net Worth (RONW)	Pre – Tax ROE- $\frac{\text{EBT}}{\text{Equity}}$ Post-Tax ROE – $\frac{\text{EAT}}{\text{Equity}}$	Either Pre-Tax or Post- Tax ROE may be computed. Post – tax ROE is generally preferred for analysis purpose.	Equity or Net worth or Shareholder's funds or owners funds or own funds	Indicates Net Income per rupee of Average Total Assets or Tangible or Fixed Assets.

Note 1) As a variant of Dividend yield, sometimes, dividend and Earnings Yield is computed as

$$\frac{\text{Dividend +/- Change in Share price}}{\text{Initial Share Price}}$$

This is sometimes referred to as Realised yield.

B. Turnover Ratios / Activity Ratios

	Ratio	Formula	Numerator	Denominator	Significance
1	Raw Material Turnover Ratio.	Cost of Raw Material Consumed / Average Stock of Raw Material	Operating Stock of Raw Material (+) Purchases of Raw Material (-) Closing Stock of Raw Material	(Opening RM Stock + Closing RM Stock) / 2	Indicates how fast/ Regular materials are used in Production.
2	WIP Turnover Ratio	Factory Cost / Average Stock of WIP	Material Consumed + Wages + POH	(Opening WIP + Closing WIP) / 2	Indicates the WIP movement/ production cycle
3	Finished goods or Stock Turnover Ratio	Cost of Goods Sold / Avg. Stock of finished goods	a) For Manufacturers: Opening stock of FG + Cost of Production – C/losing Stock of FG b) For Traders: Opening Stock of FG + Cost of goods Purchased – closing stock of finished goods.	(Opening FG Stock + Closing FG Stock) / 2	Indicates how fast inventory is used / sold. High T/O shows fast moving FG. Low T/O may means dead or excessive stock
4	Debtors turnover Ratio	Credit Sales / Average Accounts Receivable	Credit sales net of returns	Avg. Accounts receivable (i.e. Debtors + B/P) [Opening Drs. & B/R + Closing Drs. & B/R] / 2	Indicates speed of collection of credit sales/ Debtors
5	Creditors Turnover Ratio	Credit Purchase / Average Accounts Payable	Credit Purchase net of returns	Avg. Accounts Payable (i.e Creditors + B/P) [Opening Crs. & B/P + Closing Crs. & B/P] / 2	Indicates speed / velocity of payment to Creditors.
6	Working Capital Turnover Ratio (also called Operating Turnover or Cash Turnover Ratio)	Turnover / Net Working Capital	Sales net of returns	Current Assets – Current Liabilities (Avg. of openings & closing balances may be taken)	Ability to generate sales per rupee of Working Capital.

7	Fixed Assets Turnover Ratio	$\frac{\text{Turnover}}{\text{Net Fixed Assets}}$	Sales net of returns	Net Fixed assets (Avg. of Opening & Closing balances may be taken)	Ability to generate sales per rupee of Fixed Assets.
8	Capital Turnover Ratio	$\frac{\text{Turnover}}{\text{Capital Employed}}$	Sales net of returns	= Debt + Equity (i.e. a + b as above).... Liability Route = Fixed Assets + Net Working Capital..... Assets Route (Avg. of Opening & closing balances may be taken.)	Ability to generate sales per rupee of long term investment

Note :-

1) All the above T/O Ratios are expressed in times. Generally, the Higher the T/O ratio. The better it is.
2) In respect of RM, WIP and FG Stocks, Average Stock can be calculated as

$$\frac{(\text{Max. Stock} + \text{Min Stock})}{2}$$

3) Working Capital related T/O ratios. i.e items 1 to 6 above, can also be expressed in terms of days as $\frac{365}{\text{T/O Ratio}}$

Item	Computation
a) Number of days Average Stock of Raw Material held	$\frac{365}{\text{Raw Material T/O Ratio}}$
b) Number of days Average Stock of WIP held	$\frac{365}{\text{WIP T/O Ratio}}$
c) Number of Days Average stock of Finished -goods held or Number of days sales in inventory or Average stock velocity	$\frac{365}{\text{Finished Goods T/O Ratio}}$
d) Average collection period (of debtors) or Number of days sales in Receivable	$\frac{365}{\text{Debtors T/O Ratio}}$
e) Average Payment period (of creditors) or Average payment velocity	$\frac{365}{\text{Creditors T/O Ratio}}$
f) Number of days working capital held (also called Operating Cycle or Cash cycle or Working Capital Cycle)	$\frac{365}{\text{Working Capital T/O Ratio}}$

9	Total Assets Turnover Ratio:	Net sales / Total Assets	Sales net of returns	Current assets + fixed assets	Some analysts prefer to calculate total assets turnover ratio.
10	Net Assets Turnover Ratio:	net sales / Net Assets	Sales net of returns	non-current assets and net current assets (Current Assets – Current Liabilities).	Since net assets is equal to capital employed, so net assets turnover ratio may also be called as capital turnover ratio.

C. Solvency Ratios

(1)Long-term Solvency Ratios, which include fixed assets ratio, debt equity ratio and proprietary ratio;

Term	Alternative Term	Formula for Computation
a) Debt	Borrowed funds or Loan Funds	Debenture + Long term Loans from banks, financial institutions, etc.
b) Equity	Net worth or Shareholders funds or Proprietors funds or Owners fund or Own funds	Equity Share Capital + Preference Shares Capital + Reserve & Surplus – Miscellaneous expenditure (as per balance sheets) – Accumulated losses.
c) Equity Shareholder Funds		Equity as above – Preference share capital, i.e. Equity Share Capital + Reserves & Surplus Miscellaneous losses.
d) Total Funds	Long term funds or Capital employed or Investment	Debt + Equity (i.e. a+b as above) ..... Liability Route Fixed Assets + Net Working Capital ..... Assets Route

	Ratio	Formula	Numerator	Denominator	Significance
1	Debt to Total Funds Ratio or Debt Ratio	$\frac{\text{Debt}}{\text{Total Funds}}$	See (a) above	See (d) above	Indicator of use of external funds. Ideal Ratio is 67%.
2	Equity to total Funds Ratio or Equity Ratio	$\frac{\text{Equity}}{\text{Total Funds}}$	See (b) above	See (d) above	Indicates Long Term Solvency, mode of financing and extent of own funds used in operations. Ideal Ratio is 33%.
3	Debt – Equity Ratio	$\frac{\text{Debt}}{\text{Equity}}$	See (a) above	See (b) above	Indicates the relationship between Debt & Equity. Ideal Ratio is 2:1
4	Capital Gearing Ratio	$\frac{\text{Preference Capital + Debt}}{\text{Equity Shareholders Funds}}$	Preference share capital + Debt as per (a) above	See (c) above	Shown proportion of fixed charge (Dividend or Interest) Bearing Capital to equity funds, and extent of advantages or leverage enjoyed by equity Shareholders.
5	Proprietary Ratio	$\frac{\text{Proprietary Funds}}{\text{Total Assets}}$	See (b) above	Net tangible assets (+) Total Current Assets	Shown extent of owners funds, i.e. Shareholder's funds utilized in financing the assets of the business.
6	Debt total Asset Ratio	$\frac{\text{Debt Funds}}{\text{Total Assets}}$	See (a) above	See (a) above	Shows proportion of Total Assets financed with Debt, and hence, extend of Financial Leverage.
7	Fixed Asset to Long Term Fund Ratio	$\frac{\text{Fixed Assets}}{\text{Long Term Funds}}$	Net Fixed Assets, i.e. Gross Block-Depreciation	Loan, Debt	Shows proportion of Fixed Assets (Long – Term Assets) Financed by Long Term Funds. Indicates the financing approach followed by the firm, i.e. Conservative, Matching or Aggressive. Ideal Ratio is less than one.

(2) Short-term Solvency Ratios, which include current ratio, liquidity ratio, super-quick ratio and defensive interval ratio & debt service coverage ratio.

	Ratio	Formula	Numerator	Denominator	Significance
1.	Current Ratio	Current Assets / Current Liabilities	Inventories/ stocks (+) Debtors/ B/R (+) Cash & Bank (+) Receivable (+) Accruals (+) Short term loans (+) Marketable Investments/ Short Term Securities	Sundry Debtors (+) O/s Expenses (+) Short Term loans & Advances (cr.) (+) Bank Overdraft / Cash Credit (+) Provision for Taxation (+) Proposed Dividend. (+) Unclaimed Dividend	Ability to repay Short – term liabilities promptly. Ideal ratio is 2:1 Very high ration indicates existence of idle Current Assets
2	Quick Ratio (Also called as Liquid Ratio or Acid Test Ratio)	Quick Assets / Quick Liabilities	Current Assets (-) Inventories (-) Prepaid Expenses	Current Liabilities (-) Bank Overdraft (-) Cash Credit	Ability to meet immediate liabilities. Ideal Ratio is 1:1
3	Absolute Cash Called as Liquid Ratio or Absolute Liquidity Ratio	Cash + Marketable Securities / Current liabilities	Cash in hand (+) Cash at Bank (+) Marketable Investments / Short Term Securities	As per Item 1 above	Availability to meet immediate liabilities Ideal Ratio is 1:1
4	Basic Defense Interval Ratio	Quick Assets / Cash expenses per day	Current Assets (-) Inventories (-) Prepaid expenses	Annual Cash expenses / 365 Cash expenses = total expenses – depreciation & write offs	Ability to meet Regular cash expenses.
5	Debt Service Coverage Ratio (DSCR)	PAT+DEP.+ Int. / Int. loan + loan repayment in year	Profit after tax+ depreciation for the year+ interest on the loan taken.	Int. loan + loan repayment in year	key indicator to the lender to assess the extent of ability of the borrower to service the loan in regard to timely payment of interest and repayment of loan installment.

D. Valuation and Pay-out Ratios

1	Price Earnings Ratio (PE Ratio)	Market Price Per Share / Earnings per Share	Average Market price (or Closing Market Price) as per Stock exchange quotations.	EPS As per table no. point 8	Indicates relationship between MPS & EPS, and shareholders perceptions of the company
2	Book Value per Share	Net Worth / Number of Equity Shares	Equity or Net worth	Number of equity shares outstanding = Equity Capital Face Value per share	Basis of valuation of Shares based on book values.
3	Market Value to Book Value	MPS / BVPS	Average Market price (or Closing Market Price) as per stock exchange quotations.	Ratio as calculated in (9) above	Higher Ratio indicates better position for shareholders in terms of return & Capital Gains.
4.	Tobin's q	MV of equity and liability / Estimated Replacement Cost of Assets	MV of equity and liability	Estimated Replacement Cost of Assets	Q ratio is a ratio proposed by Nobel Laureate james tobin, who hypothesized that the combined market value of all the companies on the stock market should be about equal to their replacement costs.

USERS AND OBJECTIVE OF FINANCIAL ANALYSIS

S.No.	Users	Objectives	Ratios used in general
1.	Shareholders	Being owners of the organisation they are interested to know about profitability and growth of the organization	♦ Mainly Profitability Ratio [In particular Earning per share (EPS),Dividend per share (DPS), Price Earnings (P/E), Dividend Payout ratio (DP)]
2.	Investors	They are interested to know overall financial health of the organization particularly future perspective of the organisations.	♦ Profitability Ratios ♦ Capital structure Ratios ♦ Solvency Ratios ♦ Turnover Ratios
3.	Lenders	They will keep an eye on the safety perspective of their money lent to the organisation	♦ Coverage Ratios ♦ Solvency Ratios ♦ Turnover Ratios ♦ Profitability Ratios
4.	Creditors	They are interested to know liability position of the organization particularly in short term. Creditors would like to know whether the organization will be able to pay the amount on due date.	♦ Liquidity Ratios ♦ Short term solvency Ratios/ Liquidity Ratios
5.	Employees	They will be interested to know the overall financial wealth of the organisation and compare it with competitor company.	♦ Liquidity Ratios ♦ Long terms solvency Ratios ♦ Profitability Ratios ♦ Return of investment
6.	Regulator / Government	They will analyse the financial statements to determine taxations and other details payable to the government.	Profitability Ratios
7.	Managers:-		
	(a) Production Managers	They are interested to know about data regarding input output, production quantities etc.	♦ Input output Ratio ♦ Raw material consumption ratio.

	(b) Sales Managers	Data related to units sold for various years, other associated figures and predicted future sales figure will be an area of interest for them	♦ Turnover ratios (basically receivable turnover ratio) ♦ Expenses Ratios
	(c) Financial Manager	They are interested to know various ratios for their future predictions of financial requirement.	♦ Profitability Ratios (particularly related to Return on investment) ♦ Turnover ratios ♦ Capital Structure Ratios
	Chief Executive/ General Manager	They will try to assess the complete perspective of the company, starting from Sales, Finance, Inventory, Human resources, Production etc.	♦ All Ratios
8.	Different Industry		
	(a) Telecom	Finance Manager /Analyst will calculate ratios of their company and compare it with Industry norms.	♦ Ratio related to 'call' ♦ Revenue and expenses per customer
	(b) Bank		♦ Loan to deposit Ratios ♦ Operating expenses and income ratios
	(c) Hotel		♦ Room occupancy ratio ♦ Bed occupancy Ratios
			♦ Passenger- kilometre ♦ Operating cost - per passenger kilometre.

Ratios in Different Industries:

1. Ratios used in Hotel Industry: The variety of ratios used by hotel industry which are:

(i) Room Occupancy Ratio

(ii) Bed Occupancy Ratio

(iii) Double Occupancy Ratio

(iv) Seat Occupancy Ratios etc.

2. Ratios used in Transport Industry: The following important ratios are used in transport industry:

(i) Passenger Kilometers

(ii) Seat occupancy Ratios

(iii) Operating cost per kilometer

3. Bank Industry: The following important ratios are used in Bank Industry:

(i) Operating expenses ratios for various periods

(ii) Loans to deposits ratios

(iii) Operating income ratios for various periods

4. Telecom Industry: The following important ratios are used in telecom Industry.

(i) Average duration of the outgoing call

(ii) Number of outgoing calls per connection

(iii) Revenue per customer

QUESTION 1

From the following information, calculate the amount of fixed assets & proprietors funds.

1. Ratio of fixed assets to proprietors founds -0.75
2. Net working capital -₹ 6,00,000

QUESTION 2

The following information related to Chota Bheem ltd for the year ended 31st march

The working capital	₹ 12,00,000
Fixed assets to proprietors founds ratio	0.75
Working capital to more ratio	5 times
Return on equity	15%

There is no debit capital you are required to calculate.

1) Proprietors fund

2) Fixed assets and

3) Net profits ratio.

QUESTION 3

Jasoos limited has made plans for the next year 2015-16 it is estimated that the company will employ total assets of ₹ 25,00,000 30% of assets being financed by debt at an interest cost of 9% p.a. the direct cost for the year are estimated at ₹ 15,00,000 and all other operating expenses are estimated at ₹ 2,20,000 The sales revenue are estimated at ₹ 22.50,000. Tax rate is assumed to be

QUESTION 5

Malika limited gives you the following information related for the year ending 31st march 2016.

Current ratio	25.1	Current market price per Equity share	₹16
Debt-equity ratio	1.15	Net working capital	₹4,50,000
Return of total assets (after tax)	15%	Fixed assets	₹10,00,000
Total assets turnover ratio	2	60,000 equity share of	₹10 each
Gross profit ratio	20%	20,000, 9% preference	₹10each
Stock turnover ratio	7	Opening stock	3,80,000

You are required to calculate

a) Quick ratio

b) Fixed assets turnover ratio

c) Proprietary ratio

d) Earnings per share

e) Price earnings ratio

QUESTION 6

The following accounting information and financial ratio of Lala limited relate to the year ended 31st march, 2016;

Inventory turnover ratio	6 times
Creditors turnover ratio	10 times
Debtors turnover ratio	8 times
Current ratio	2.4
Gross profit ratio	25%

Total sales ₹ 30,00,000, cash sales 25% of credit sales, cash purchases ₹ 2,30,000; closing inventory is ₹ 80,000 more than opening inventory, working capital 2,80,000

You are required to calculate:

a) Average inventory

b) Purchases

c) Average debtors

d) Average creditors

e) Average payment period

f) Average collection period

g) Current assets

h) Current liabilities

QUESTION 7

Following information relate to a concern

Debtors velocity	3 months	Bills receivable	₹ 25,000
Creditors velocity	2 months	Bills payable	₹ 10,000
Stock turnover ratio	1.5	Gross profit	₹4,00,000
Gross profit ratio	25%	Fixed assets to ratio	4

Closing stock of the period is ₹ 10,000 above the opening stock. You are required to compute-

a) Sales

b) Cost of goods sold

c) Sundry debtors

d) Sundry creditors

e) Closing stock

f) Fixed assets

QUESTION 8

The financial statements of a company contain the following information for the year ending 31st march-

Particulars	₹
Cash	1,60,000
Sundry debtors	4,00,000
Short term investments	3,20,000
Stock	21,60,000
Prepaid expenses	10,000
Total current assets	30,50,000
Current liabilities	10,00,000
10% debentures	16,00,000
Equity share capital	20,00,000
Retained earning	8,00,000

Statement of profit for the year ended 31st march

Particulars	₹
Sales (20% cash sales	40,00,000
less: cost goods sold	28,00,000
Profit before interest & tax	12,00,000
Less: interest	1,60,000
Profit before tax	10,40,000
Less: tax@ 30%	3,12,000
Profit after tax	7,28,000

Calculate –

a) Quick ratio

b) debt-equity ratio

c) ROCE, and

d) Average collection period (Assuming 360 day year).

QUESTION 9

The total sales (All credit) of a firm are ₹ 6,40,000 it has a gross profit margin of 15 per cent and current ratio of 2.5 the firms current liabilities are ₹ 96,000; inventories ₹ 48,000 and cash ₹ 16,000.

a) Determine the average inventory to be carried by the firm, if an inventory turnover of 5 times is expected? (Assume a 360 day year)

b) Determine the average collection period if the opening balance of debtors is intended to be of ₹ 80,000? (Assume a 360 day year)

QUESTION 10

The capital structure of lali limited is as follows:

Equity share capital of ₹ 10 each	₹ 8,00,000
9% preference share capital of ₹ 10 each	₹ 3,00,000
	₹ 11,00,000

Additional information: profit (after tax at 35 per cent), ₹ 2,70,000; depreciation , ₹ 60,000, equity dividend paid ,20 per cent; market price of equity shares, ₹40.

You are required to compute the following, showing the necessary working:

a) Dividend yield on the equity share

b) Cover for the performance and equity dividends

c) Earnings per shares

d) Price-earnings ratio

QUESTION 11

From the following information, prepare a summarized balance sheet as at 31st march 2002-

Net working capital	₹ 2,40,000
Bank overdraft	₹ 40,000
Fixed assets to proprietary ratio	0.75
Reserves and surplus	₹ 1,60,000
Current ratio	2.5
Liquid ratio (quick ratio)	1.5

QUESTION 12

With the help of the following information complete the balance sheet of Priyanka ltd-

Equity share capital	₹ 2,40,000
The relevant ratio of the company are as follows:	
Current debt to total debt	0.40
Total debt to equity share capital	0.60
Fixed assets to equity share capital	0.60
Total assets turnover	2 times
Inventory turnover	8 times

QUESTION 13

Using the following information complete the balance sheet given below:

Total debit to net worth	1:2
Total assets turnover	2
Gross profit on sales	30%
Average collection period (assume 360 days in a year)	40 days
Inventory turnover ratio based on cost of Goods sold and year-end inventory	3
Acid test ratio	0.75

Balance sheet as on march 31, 2016

liabilities	₹	Assets	₹
Equity shares capital	4,00,000	Plant and machinery	-
Reserves and surplus	6,00,000	And other fixed assets	
Total debt:		Current assets:	
Current liabilities	-	Inventory	-
		Debtors	
		Cash	

QUESTION 14

The following figures and ratio pertain to Sallu Company limited for the year ending 31st march:

Annual sales(credit)	₹5,57,000	Current ratio	1.5
Gross profit ratio	28%	Debtors collection period	45 days
Fixed assets turnover Ratio (based on cost sold)	1.5	Reserves & surplus to Share capital	0.60:1
Stock turnover ratio (based on cost of goods)	6	Capital gearing ratio	0.5
Quick ratio	1:1	Fixed assets to worth	1.2:1

Prepare the balance sheets as 31st march based on the above information assume 360days in year.

QUESTION 15

The assets of Popatlal ltd, consist of fixed assets and current assets , while its current liabilities comprise bank credit in the ratio of 2:1 you are required to prepare the balance sheet of the company as on 31st march 2016 with the help of following information:

Share capital	₹ 5,75,000
Working capital	₹ 1,50,000
Gross margin	25%
Inventory turnover	5 times
Average collection period	1.5 month
Current ratio	1.5:1
Quick ratio	0.8:1
Reserves & surplus to bank & cash	4 times

Assume 360 days in a year

QUESTION 16

Munna Bhaiya limited has furnished the following ratio and information relating to the year ended 31st march, 2017:

Sales	₹ 60,00,000
Return on net worth	25%
Rate of income tax	50%
Share capital to reserves	7:3
Current ratio	2
Net profit to sales	6.25%
Inventory turnover (based on cost of goods sold)	12
Cost of goods sold	₹ 18,00,00
Interest on debentures	₹ 60,000
Receivable	₹ 2,00,000
Payable	₹ 2,00,000

You are required to:

a) Calculate the operating expenses for the year ended 31st march 2017.

b) Prepare a balance sheets as on 31st march in the following format

Balance sheet as on march 31st 2016

Liabilities	₹	Assets	₹
Equity share capital	4,00,000	Fixed assets	-
Reserves and surplus	6,00,000	Current assets	
15% debenture	-	Inventory	-
Payables	-	Receivable	-
		cash	-

QUESTION 17

With the following information given below prepare a trading A/C profit and loss A/C and balance sheet of Gabbar Ltd. Company.

Fixed assets	₹ 40,00,000
Closing stock	₹ 4,00,000
Stock turnover ratio	10
Gross profit ratio	25%
Net profit ratio	20 percent
Net profit of capital	1/5
Capital to total liabilities	½
Fixed assets to capital	5/4
Fixed assets/ total current assets	5/7

QUESTION 18 (Homework Sum)

Following is the Profit and Loss Account and Balance Sheet of Jai Hind Ltd. Redraft them for the purpose of analysis and calculate the following ratios: (1) Gross Profit Ratio (2) Overall Profitability Ratio (3) Current Ratio (4) Debt-Equity Ratio (5) Stock-Turnover Ratio (6) Finished Goods Turnover Ratio (7) Liquidity Ratio.

Dr. Profit and Loss A/C for the year ended 31st March, 2022 Cr.

Particulars	Amount ₹	particulars	Amount ₹
Opening stock of finished goods	1,00,000	Sales	10,00,000
Opening stock of raw material	50,000	Closing stock of raw material	1,50,000
Purchase of raw material	3,00,000	Closing stock of finished goods	1,00,000
Direct wages	2,00,000	Profit on sale of shares	50,000
Manufacturing expenses	1,00,000		
Administration expenses	50,000		
Selling & distribution expenses	50,000		
Loss on sale of plant	55,000		
interest on debentures	10,000		
Net Profit	3,85,000		

Balance Sheet as on 31.3.2022

Liabilities	Amount ₹	Assets	Amount ₹
Equity share capital	1,00,000	Fixed assets	2,50,000
Preference share capital	1,00,000	Stock of raw material	1,50,000
Reserves	1,00,000	Stock of finished goods	1,00,000
Debentures	2,00,000	Bank balance	50,000
Sundry creditors	1,00,000	Debtors	1,00,000
Bills payable	50,000		
Total	6,50,000	Total	6,50,000

QUESTION 19 (Homework Sum)

The capital of A Ltd. is as follows:

10% Preference shares, ₹ 10 each	₹ 3,00,000
Equity shares of ₹ 10 each	₹ 8,00,000
Total	₹ 11,00,000

Additional information: Profit (after tax at 35%), ₹ 2,70,000; Depreciation, ₹ 60,000; Equity dividend paid 20%; Market price of equity shares, ₹ 50.

You are required to compute the following, showing the necessary workings: (a) Dividend yield on the equity shares (b) Cover for the preference and equity dividends (c) Earnings per shares and (d) Price-earnings ratio.

CMA STUDENTS AND TEAM AAC CELEBRATING SUCCESS OF CMA INTER CLEARED STUDENT IN GOA

FIRST TIME IN HISTORY OF CMA.....

.....NEXT CAN BE YOU.

CHAPTER 1B - FINANCIAL SCORES

1. Altman's Z Scores

In 1968, Edward I. Altman developed a Multivariate Model of Corporate Distress Prediction on the basis of Multiple Discriminant Analysis (MDA). He selected 33 failed and 33 non-failed firms, of which 22 Accounting and Non-accounting Ratios, which had been deemed to be the predictors of Corporate Distress, were taken into consideration. Of the 22 Accounting Ratios, he selected 5 ratios which had been deemed as the best predictors of Corporate Distress Prediction.

The purposes of these five selected ratios are as follows:

~ To measure liquidity position of the firms.

~ To measure reinvestment of earnings of the firms.

~ To measure profitability of the firms.

~ To measure financial leverage condition of the firms.

~ To measure sales-generating ability of firm's Assets.

Hence, the Model is:

$Z = 1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4 + 1.0X_5$

Where,

Z = Overall Index of Multiple Index Function

X1 = Working Capital / Total Assets. It measures liquid assets in relation to the size of the company.

X2 = Retained Earnings / Total Assets. It measures profitability that reflects the company's age and earning power.

X3 = Earnings before Interest and Taxes / Total Assets. It measures operating efficiency apart from tax and leveraging factors. It recognizes operating earnings as being important to long-term viability.

X4 = Market Value of Equity / Book Value of Total Liabilities. It adds market dimension that can show up security price fluctuation as a possible red flag.

X5 = Sales / Total Assets. Standard measure for total asset turnover (varies greatly from industry to industry).

Analysis of Value of Z-score

(i) If the calculated value of Z-score is greater than 2.99, it is predicted that the firm belongs to non-bankrupt class (i.e., non-failed firm).

(ii) If the calculated value of Z-score is smaller than 1.81, it is predicted that the firm belongs to bankrupt class (i.e., failed firm).

(iii) If the calculated value of Z-score of a firm falls between 1.81 and 2.99 (referred to as Grey Area), it is predicted that the firm consists of both bankrupt and non-bankrupt class (i.e., mixture of failed and non-failed elements) and, therefore, requires further investigation to determine its solvency status.

As per Altman's Multivariate Model of Distress Prediction

(a) If $Z > 2.99$: Non-failed or non-distressed firm

(b) If $Z < 1.81$: Failed or distressed firm

(c) If $Z \geq 1.81$ but ≤ 2.99: Mixture of failed and non-failed elements which requires further investigation to determine its solvency status.

In 1983, Altman developed a revised Z-score model for privately held firms. "Credit analysis, private placement dealers, accounting auditors, and firms themselves are concerned that the original model is only applicable to publicly traded entities (since X requires stock price data)". The revised Z-scores substitute the book value of equity for the market value in X.

The new Z-score model ratios are listed below:

X1 = Working Capital / Total Assets

X2 = Retained Earnings / Total Assets

X3 = Earnings before Interest and Taxes / Total Assets

X4 = Market Value of Equity / Total Liabilities

X5 = Sales / Total Assets

A change in the weight factor is also calculated. The revised Z-Score formula follows:

$Z = 0.717(X_1) + 0.847(X_2) + 3.107(X_3) + 0.420(X_4) + 0.998(X_5)$

Zones of Discrimination:

$Z > 2.9$ "Safe" Zone

$1.23 < Z < 2.9$ "Grey" Zone

$Z < 1.23$ "Distress" Zone

Z-score estimated for manufacturers, industrials, non-manufacturers & emerging markets:

X1 = (Current Assets – Current Liabilities) / Total Assets

X2 = Retained Earnings / Total Assets

X3 = Earnings before Interest and Taxes / Total Assets

X4 = Book Value of Equity / Total Liabilities

Z-Score bankruptcy model:

$Z = 6.56X_1 + 3.26X_2 + 6.72X_3 + 1.05X_4$

Zones of discriminations:

$Z > 2.60$ "Safe" Zone

$1.1 < Z < 2.60$ "Grey" Zone

$Z < 1.1$ "Distress" Zone

QUESTION 1.

From the information given below relating to Bad Past Ltd., calculate Altman's Z-score and commer

(i) Working Capital to Total Assets = 25%

(ii) Retained Earnings to Total Assets = 30%

(iii) EBIT to Total Assets = 15%

(iv) Market Value of Equity Shares to Book Value of Total Debt = 150%

(v) Sales to Total Assets = 2 times

2. Beneish M Score

In 1999, Messod D. Beneish developed a mathematical model that uses financial ratios and eight variables to identify whether a company has manipulated its earnings. Beneish M Score helps to uncover companies who are likely to be manipulating their reported earnings. Companies with a higher score are more likely to be manipulators.

He also found that companies are incentivised to manipulate profits if they have high sales growth, deteriorating gross margins, rising operating expenses and rising leverage. They are likely to manipulate profits by accelerating sales recognition, increasing cost deferrals, raising accruals and reducing depreciation.

These eight ratios or variables are discussed below:

1. Days' Sales in Receivables Index (DSRI): A large increase in receivable days might suggest accelerated revenue recognition to inflate profits.

$DSRI = (\text{Net Receivables}_t / \text{Sales}_t) / \text{Net Receivables}_{t-1} / \text{Sales}_{t-1})$

2 Gross Margin Index (GMI): A deteriorating gross margin sends a negative signal about a firm's prospects and creates an incentive to inflate profits.

$GMI = [(\text{Sales}_{t-1} - \text{COGS}_{t-1}) / \text{Sales}_{t-1}] / [(\text{Sales}_t - \text{COGS}_t) / \text{Sales}_t]$

3. Asset Quality Index (AQI): An increase in long-term assets (for example, the capitalisation of costs), other than property plant and equipment, relative to total assets indicates that a firm has potentially increased its involvement in cost deferral to inflate profits.

AQI = [1 - (Current Assetst + PP&Et + Securitiest) ÷ Total Assetst] / [1 - {(Current Assetst-1 + PP&Et-1 + t/t-1 × Securitiest-1) ÷ Total Assetst-1}]

4. Sales Growth Index (SGI): High sales growth does not imply manipulation but high growth companies are more likely to commit financial fraud because their financial position and capital needs put pressure on managers to achieve earnings targets. If growth firms face large stock prices losses at the first indication of a slowdown, they may have greater incentives to manipulate earnings.

$SGI = Sales_t / Sales_{t-1}$

5. Depreciation Index (DEPI): A falling level of depreciation relative to net fixed assets raises the possibility that a firm has revised upwards the estimated useful life of assets, or adopted a new method that is income increasing.

DEPI = (Depreciationt-1/ (PP&Et-1 + Depreciationt-1)) / (Depreciation $_t$ / (PP&Et + Depreciation $_t$))

6. Sales, General and Administrative Expenses (SGAI): Analysts might interpret a disproportionate increase in SG&A relative to sales as a negative signal about a firm's future prospects, thereby creating an inventive to inflate profits.

SGAI = (SG&A Expense $_t$ / Sales $_t$) / (SG&A Expense $_{t-1}$ / Sales $_{t-1}$)

7. Leverage Index (LVGI): Leverage is measured as total debt relative to total assets. An increase in leverage creates an incentive to manipulate profits in order to meet debt covenants.

LVGI = [(Current Liabilities $_t$ + Total Long-term Debt $_t$) / Total Assets $_t$] / [(Current Liabilitiest-1 + Total Long-term Debtt-1) / Total Assetst-1]

8. Total Accruals to Total Assets (TATA): Total accruals are calculated as the change in working capital (other than cash) less depreciation relative to total assets. Accruals, or a portion thereof, reflect the extent to which managers make discretionary accounting choices to alter earnings. A higher level of accruals is, therefore, associated with a higher likelihood of profit manipulation.

TATA = (Income from Continuing Operations $_t$ - Cash Flows from Operations $_t$) / Total Assets $_t$

Beneish M Score

Beneish M Score = −4.84 + 0.92 × DSRI + 0.528 × GMI + 0.404 × AQI + 0.892 × SGI + 0.115 × DEPI −0.172 × SGAI + 4.679 × TATA − 0.327 × LVGI

Interpretation:

(a) The threshold value is -1.78 for the model.

(b) If M-score is less than -1.78, the company is unlikely to be a manipulator. For example, an M-score value of -2.50 suggests a low likelihood of manipulation.

(c) If M-score is greater than −1.78, the company is likely to be a manipulator. For example, an M-score value of -1.50 suggests a high likelihood of manipulation.

Here are optimal cut-offs according to Beneish, presented as the score followed by the cost of Type I error relative to cost of Type II error):

M Score Table

Score	Relative Error Costs (Type I: Type II)
M Score > -1.49	(10:1)
M Score > -1.78	(20:1)
M Score > -1.89	(40+:1)

The best cut-off point depends on the costs mistakenly classifying in one of two ways:
(1) Classifying firm that is manipulating earnings as a non-manipulator (Type I error), and
(2) Classifying a firm as a manipulator when it actually was not manipulating (Type II Error).
This model is used by students from Cornell University and detect Enron Corporation was correctly identified 1998 as an earnings manipulator using M-score.

Limitations of the Model
This is a probabilistic model, so it will not detect manipulators with 100% accuracy.
(a) Financial institutions were excluded from the sample in Beneish Model when calculating M-score. It means that the M-score for fraud detection cannot be applied among financial firms (banks, insurance).
(b) Financial institutions were excluded from the sample in Beneish Model when calculating M-score. It means that the M-score for fraud detection cannot be applied among financial firms (banks, insurance).

3. Piotroski F Score

Joseph Piotroski, an accounting professor at the University of Chicago published a research paper on Value Investing: The Use of Historical Financial Statement Information to Separate Winners from Losers2. He examined whether a simple accounting-based fundamental analysis strategy, when applied to a broad portfolio of high book to-market firms, can shift the distribution of returns earned by an investor. The strategy builds on investing in value stocks with strong financial performance. Piotroski (2000) documented for the US market between 1976 and 1996 that investors can increase the mean return with 7.5 % annually by investing in financially strong (high F-score) value stocks. Furthermore, he showed that an investment strategy that buys expected financially strong (high F-score) value stocks and short sell expected financially weak (low F-score) value stocks earn a return of 23 % annually.
The Piotroski F-score was first published in 2000. The F-score is a binary scoring system from 0 to 9 based on nine parameters/variables. The nine variables capture the factors profitability, leverage/liquidity and operating efficiency. Hence, a company can receive an F-score between 0 and 9 whereof 9 is the best score and is expected to have the strongest subsequent financial performance. For every criterion that are met, the company is given one-point, and if it is not met, then no points are awarded. The points are then added up to determine the best value stocks. Piotroski stated that the financial strength of a company could be determined using data solely

from its financial statements. Moreover, a score of 0 is expected to have the weakest financial performance.

F -Score is based on nine signals which measure a stock's financial condition from three perspectives: profitability, financial leverage/liquidity and operating efficiency. A fundamental signal is classified as either good or bad whereof one is good and zero is bad.

A. Financial Performance Signals: Profitability

1. Return on Assets (ROA): (1 point if it is positive in the current year, 0 otherwise);
2. Operating Cash Flow (CFO) (1 point if it is positive in the current year, 0 otherwise);
3. Change in Return of Assets (ΔROA) (1 point if ROA is higher in the current year compared to the previous one, 0 otherwise);
4. Accruals (F_ ACCRUAL) (1 point if Operating Cash Flow/Total Assets is higher than ROA in the current year, 0 otherwise); He defined ROA and CFO as net income before extraordinary items and cash flow from operations, respectively, scaled by beginning of the year total assets. If the firm's ROA (CFO) is positive, the indicator variable would be F_ROA (F_CFO) equal to one, zero otherwise. Further, ΔROA defined as the current year's ROA less the prior year's ROA. If ΔROA > 0, the indicator variable F_ ΔROA equals one, zero otherwise.

The variable ACCRUAL defined as current year's net income before extraordinary items less cash flow from operations, scaled by beginning of the year total assets. The indicator variable F_ ACCRUAL equals one if CFO > ROA, zero otherwise.

B. Financial Performance Signals: Leverage, Liquidity, and Source of Funds

1. Change in Leverage (ΔLEVER) (long-term) ratio (1 point if the ratio is lower this year compared to the previous one, 0 otherwise);
2. Change in Current ratio (ΔLIQUID) (1 point if it is higher in the current year compared to the previous one, 0 otherwise);
3. Change in the number of shares (EQ_OFFER) (1 point if no new shares were issued during the last year);

ΔLEVER defined as the historical change in the ratio of total long-term debt to average total assets, and view an increase (decrease) in financial leverage as a negative (positive) signal. The indicator variable defined F_ ΔLEVER to equal one (zero) if the firm's leverage ratio fell (rose) in the year preceding portfolio formation.

The variable ΔLIQUID measures the historical change in the firm's current ratio between the current and prior year, an improvement in liquidity (i.e., ΔLIQUID > 0) is a good signal about the firm's ability to service current debt obligations. The indicator variable F_ΔLIQUID equals one if the firm's liquidity improved, zero otherwise.

The indicator variable defined EQ_OFFER to equal one if the firm did not issue common equity in the year preceding portfolio formation, zero otherwise.

C. Financial Performance Signals: Operating Efficiency

1. Change in Gross Margin (ΔMARGIN) (1 point if it is higher in the current year compared to the previous one, 0 otherwise);

2. Change in Asset Turnover ratio (ΔTURN) (1 point if it is higher in the current year compared to the previous one, 0 otherwise);

ΔMARGIN defined as the firm's current gross margin ratio (gross margin scaled by total sales) less the prior year's gross margin ratio. An improvement in margins signifies a potential improvement in factor costs, a reduction in inventory costs, or a rise in the price of the firm's product. The indicator variable F_ΔMARGIN equals one if ΔMARGIN is positive, zero otherwise.

ΔTURN as the firm's current year asset turnover ratio (total sales scaled by beginning of the year total assets) less the prior year's asset turnover ratio.

Some adjustments that were done in calculation of the required financial ratios. The score is calculated based on the data from financial statement of a company. A company gets 1 point for each met criterion.

Summing up of all achieved points gives Piotroski F-score (number between 0 and 9).

Piotroski's Investment Strategy in Three Steps

Step 1: Book-to-market - Calculate book-to-market for all firms at fiscal year-end - Categorize values into quintiles.

Step 2: F-score - Calculate F-score for all firms in the highest quintile at fiscal year-end.

Step 3: Investment - Buy the firm 5 months after fiscal year-end. Sell 12 months after investment.

Interpretation

A company that has Piotroski F-score of 8–9 is considered to be strong. Alternatively, firms achieving the F-score of 0–2 are considered to be weak.

Average value of Piotroski F-score can be different in different branches of economy (e.g., manufacturing, finance, etc.). This should be taken into consideration when comparing companies with different specializations.

CHAPTER 2A -TIME VALUE OF MONEY

• Rationale

Most financial decisions, personal as well as business, involve time value of money considerations. Money of the financial problems involves cash flows occurring at different points of the time. For evaluating such cash flows an explicit consideration of the time value of money is required.

Money has time value. A rupee today is more valuable than a rupee a year hence.

So, the time value of money is an individual's preference for possession of a given amount of money now, rather than the same amount at some future date.

Mainly there are three reasons may be attributed to the individual's time preference for money.

(i) Risk: We are not certain about future cash receipts. In an inflationary period, a rupee today represents a greater real Purchasing Power than a rupee a year hence. So, an individual prefers receiving cash now.

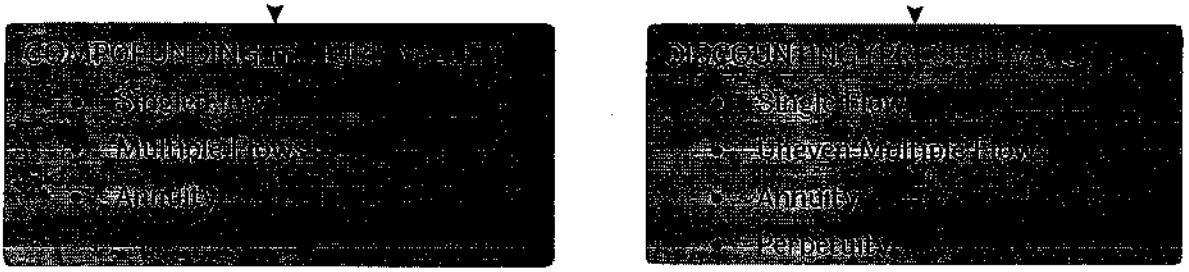
(ii) Preference for consumption: Individuals, in general, prefer current consumption to future consumption.

(iii) Investment opportunities: Capital can be employed productively to generate positive returns. An investment of one rupee today would grow to (1+r) a year hence (r is the rate of return earned on the investments).

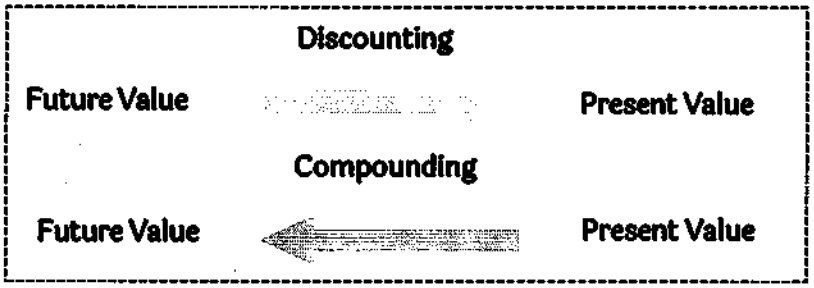
• Techniques

There are two methods of estimating time value of money which are shown below figure.

TIME VALUE OF MONEY



Techniques of Time Value of Money



Comparison between Compounding and Discounting

A. Compounding Technique:

Compounding is the process of finding future values of cash flows by applying the concept of compound interest. We can calculate the future values (FV) of all the cash flows at the end of the time period at a given rate of interest.

Future value = Present value + Interest

Compounding technique can be used to the following cases:

(a) Single Flow

(b) Multiple Flows

(c) Annuity

B. Discounting Technique

Discounting is the process of determining present values of a series of future cash flows. The compound interest rate used for discounting cash flows is also called the discount rate.

We determine the time value of money at time "0" by comparing the initial outflow with the sum of the present values (PV) of the future inflows at a given rate of interest.

Discounting technique can be used to the following circumstances.

(a) Single Flow
(b) Un-even Multiple Flows
(c) Annuity
(d) Perpetuity

• **Techniques**

(i) Future Value of a Single Flow

Suppose an investor have ´ 1,000 today and he deposits it with a financial institution, this pays 10 % interest compounded annually, for a period of 3 years. The deposit would grow as follows:

First year	Principal at the beginning	1,000
	Interest for the year (1,000 × 0.10)	100
	Principal at the end	1,100
Second year	Principal at the beginning	1,100
	Interest for the year (1,100×0.10)	110
	Principal at the end	1,210
Third year	Principal at the beginning	1,210
	Interest for the year 1,210×0.10)	121
	Principal at the end	1,331

The general formula for the future value of single flow:

$FV = PV (1+r)n$

Where FV = Future value n years hence

PV = Amount invested today

r= Interest rate per period

n= Number of periods of investments

To find out the future value (FV) of a single cash flow, we can use the MS Excel's built-in function. The FV is given below:

FV (RATE, NPER, PMT, PV, TYPE)

RATE is the discount or the interest rate for a period. NPER is the number of periods.

PMT is the equal payment (annuity) each period

PV is the present value

TYPE indicates the timing of cash flow, occurring either at the beginning or at the end of the period.

QUESTION 1

If a person invests ₹1,50,000 in an investment which pays 12% rate of interest, what will be the future value of the invested amount at the end of 10 years?

Doubling Period

Investor wants to know how long would take to double the investment amount at a given rate of interest. If we look at the future value interest factor table, we find that when the interest rate is 12% it takes about 6 years to double the amount. When the interest rate is 6%, it takes about 12 years to double the amount, so on and so forth. Doubling Period Investor wants to know how long would take to double the investment amount at a given rate of interest. If we look at the future value interest factor table, we find that when the interest rate is 12% it takes about 6 years to double the amount. When the interest rate is 6%, it takes about 12 years to double the amount, so on and so forth.

There is a thumb rule of 72 that helps to find out the doubling period. According to this rule of thumb, the doubling period is obtained by dividing 72 by the interest rate.

However, an accurate way of calculating the doubling period is the Rule of "69".

Under this Rule, doubling period = $0.35 + \frac{69}{\text{Interest Rate}}$

QUESTION 2

How long it will take for ₹20,000 to double at a compound rate of 8% per annum (approximately)?

Future Value of Single and Multiple Cash Flows

Annually single cash flow	$FV = PV(1+r)^n$ Or, $FV = PV\ (FVIF_{r,n})$	PV= Present value FV= Future value r= Interest rate n= Number of years $FVIF_{r,n}$=Future Value Interest Factor
Multiple times say m no. of times compounding done	$FV = PV\left[1+\frac{r}{m}\right]^{mn}$	PV= Present value FV= Future value r= Interest rate n= Number of years m= Number of times compounding done say quarterly then m=4, half-yearly m=6 and so on.
Cash flows of different amounts over years i.e. a series of payments	$FV = PV_1 \times (1+r)^1 + PV_2 \times (1+r)^2 + ...+PV_n \times (1+r)n$ i.e. $\sum_{t=t}^{n} A_t\ (1+r)^t$	PV= Present value FV= Future value r = Interest rate n = Number of years t = 1, 2, 3, 4.... A_t = Cash flow occuring at time t

(ii) Present Value of a Single Flow

Present Value can be calculated by using the following formulas:

1.	Annually single cash flow	$PV = FV\left\{\frac{1}{(1+r)^n}\right\}$ or, $PV = FV(1+r)^{-n}$ or, $PV = FV(PVIF_{r,n})$	PV = Present value FV = future value r = discount n = no of years $PVIF_{r,n}$ = Present Value Interest Factor
2.	Multiple times, say m no of times discounting done	$PV = FV\left\{\frac{1}{\left(1+\frac{r}{m}\right)^{mn}}\right\}$	PV = Present value FV = future value r = discount rate n = no of years m = no of times discounting done say quarterly then m = 4, half-yearly m=6 and so on.
3.	Cash flows of different amounts over years	$PV = \frac{FV_1}{(1+r)^1} + \frac{FV_2}{(1+r)^2} + \dots + \frac{FV_n}{(1+r)^n}$ i.e. $\sum_{t=1}^{n} \frac{A^t}{(1+r)^t}$	PV = Present value FV = future value r = discount rate n = duration of the cash flow stream t = indicates years of extending from one year to n years A = cash flow occuring at time t

The process of discounting, used for finding present value, is simply the reverse of compounding. The presentvalue formula can be readily obtained by manipulating the compounding formula:

$FV = PV(1+r)^n$

Dividing both sides of above Eq. by $(1+r)^n$ we get

$$PV = FV\left[\frac{1}{(1+r)^n}\right]$$

$\left[\frac{1}{(1+r)^n}\right]$ in above equation called the discounting factor or the present value interest $(PVIF_{i,n})$, the value of $(PVIF_{i,n})$ for several combinations of i and n.

To find out the present value (FV) of a single cash flow, we can use the MS Excel's built-in function. The PV is given below:

PV (RATE, NPER, PMT, FV, TYPE)

RATE is the discount or the interest rate

for a period. NPER is the number of

periods.

PMT is the equal payment (annuity) each period

FV is the Future value

TYPE indicates the timing of cash flow, occurring either at the beginning or at the end of the period.

QUESTION 3

Suppose someone promise to give you ´1,000 three years hence. What is the present value of this amount if the interest rate is 10%?

• Annuity and Perpetuity

(A) Annuity

An annuity is a series of equal payments or receipts occurring over a specified number of periods. The time period between two successive payments is called payment period or rent period. The word annuity in broader sense includes payments which can be annual, semi-annual, quarterly or any other length of time. For example, when a company set aside a fixed sum each year to meet a future obligation, it is using annuity.

Future Value of Ordinary Annuity

In an ordinary annuity, payments or receipts occur at the end of each period. In a ten-year ordinary annuity, the last payment is made at the end of the tenth year.

Future Value of Ordinary Annuity can be calculated by using the following formula:

$$FVA_n = A\left\{\frac{(1+r)^n - 1}{r}\right\}$$

Or

$$FVA_n = A[\{(1+r)^n - 1\}/r]$$

Where,

FVA_n = Future value of an annuity which is the sum of the compound amounts of all payments and a duration of n periods

A = Amount of each instalment or constant periodic flow

r = Interest rate per period

n = Number of periods

$\frac{(1+r)^n - 1}{r}$ is known as the future value interest factor of an annuity ($FVIFA_{r,n}$)

QUESTION 4

Apex Ltd. has an obligation to redeem ` 50 crore bonds 6 years hence. How much should the company deposit annually in a sinking fund account wherein it earns 12% interest, to accumulate ` 50 crore in 6 years' time?

Present Value of Ordinary Annuit

Present Value of Ordinary Annuity can be calculated by using the following

$$PVA_n = A\,[\{1 - (1/1+r)^n\}/r]$$

where,

PVA_n = Present value of an annuity which is the sum of the compound amounts of all payments and a duration of n periods

A = Amount of each instalment or constant periodic flow

r = Discount rate

n = Number of periods

$[\{1 - (1/1+r)^n\}/r]$ is called present value interest factor.

(A) Perpetuity:

Perpetuity is an annuity that occurs indefinitely. The stream of cash flows continues for an infinite amount of time. Fixed coupon payments on permanently invested (irredeemable) sums of money are prime examples of perpetuities. Scholarships paid perpetually from an endowment fund. The value of the perpetuity is finite because receipts that are anticipated far in the future have extremely low present value.

By definition, in a perpetuity, time period, n, is so large (i.e., mathematically n approaches infinity) that tends to

become zero and the formula for a perpetuity simply becomes

Present value of a perpetuity may be written as follows:

$P_\infty = A \times PVIF\,A_{r,\infty}$

Where,

P_∞ = Present value of a perpetuity

A = Constant annual payment

$PVIF\,A_{r,\infty}$ = Present value interest factor of perpetuity

Here, the present value interest factor of perpetuity is simply 1 divided by the interest rate expressed in decimal form. So, the present value of a perpetuity is simply equal to the constant annual payment divided by the interest rate.

So, $P_\infty = \frac{1}{R}$ OR

Present value of perpetuity = $\frac{\text{Perpetuity}}{\text{Interest rate}}$

• Compound Annual Growth Rate (CAGR)

Compound Annual Growth Rate (CAGR) is the annual growth of investments over a specific period of time. In other words, it is a measure of how much an investor earned from the investments every year during a given interval.

This is one of the most accurate methods of calculating the rise or fall of your investment returns over time.

Steps involved in calculating the CAGR of an investment:

Step 1: Divide the value of an investment at the end of the period by its value at the beginning of that period. Step 2: Raise the result to an exponent of one divided by the number of years.

Step 3: Subtract one from the subsequent result.

Step 4: Multiply by 100 to convert the answer into a percentage. The Compound Annual Growth Rate (CAGR) formula is:

$$CAGR = \left(\left[\frac{EV}{BV}\right]^{N}\right)$$

Where, EV= Ending balance is the value of the investment at the end of the investment period.

BV= Beginning balance is the value of the investment at the beginning of the investment period.

N = Number of years amount invested.

CAGR may be used in the following cases:

(i) Calculating and communicating the average returns of investment funds.

(ii) Demonstrating and comparing the performance of investment advisors.

(iii) Comparing the historical returns of stocks with bonds or with a savings account.

(iv) Forecasting future values based on the CAGR of a data series.

(v) Analyzing and communicating the behavior, over a series of years, of different business measures such as

(vi) sales, market share, costs, customer satisfaction, and performance.

For example, X Ltd. had revenues of ´100 crore in 2010 which increased to ´ 1,000 crore in 2020. What was the compounded annual growth rate?

Solution:

The Compounded Annual Growth Rate (CGAR) can be calculated as follows:

$$CAGR = \left[\left(\frac{EV}{BV}\right)^{\frac{1}{n}} - 1\right] \times 100$$

$$= \left[\left(\frac{1,000}{100}\right)^{\frac{1}{10}} - 1\right] \times 100$$

$$= \left[(10)^{\frac{1}{10}} - 1\right] \times 100$$

$$= (1.26 - 1) \times 100$$

$$= 26\%$$

• Practical Applications

An important use of present value concepts is in determining the payments required for an instalment-type loan. The distinguishing feature of this loan is that it is repaid in equal periodic payments that include both interest and principal. These payments can be made monthly, quarterly, semi-annually, or annually. Instalment payments are prevalent in mortgage loans, auto loans, consumer loans, and certain business loans. The future value of an annuity can be applied in different scenarios by different organisations and individuals such as:

(i) One may able to know the accumulated fund at the certain period (i.e., Deposit in Public Provident Fund)

(ii) How much should one person save annually if his or her savings earn a compound return (i.e., annual savings to buy a house after certain period, deposit in sinking fund).

(iii) The present value of an annuity can be applied in case of loan amortisation by a borrower.

QUESTION 5

Find the present value of ₹ 1,000 receivable 6 years hence if the rate of discount is 10%.

QUESTION 6

Find the present value of ₹ 1,000 receivable 20 years hence if the discount rate is 8%.

QUESTION 7

An individual deposited ₹ 1,00,000 in a bank @ 12% compound interest per annum. How much he would receive after 20 years ?

QUESTION 8

Mr. X is depositing ₹ 20,000 in a recurring bank deposit which pays 9% p.a. compounded interest. How much amount Mr. A will get at the end of 5th Year.

QUESTION 9
A Person is required to pay annual payments of ´ 8,000 in his Deposit Account that pays 10% interest per year. Find out the future value of annuity at the end of 5 years.

QUESTION 10
Ascertain the future value and compound interest of an amount of ´ 75,000 at 8% compounded semi-annually for 5 years.

QUESTION 11
An investor expects a perpetual sum of ´ 5,000 annually from his investment. What is the present value of the perpetuity if interest rate is 10%?

QUESTION 12
What is the present value of Rs. 1 to be received after 2 years compounded annually at 10 %?

QUESTION 13
Find out the present value of Rs. 2,000 received after 10 years if discount rate is 8 %

QUESTION 14
What is the present value of Rs. 50,000 to be received after 10 years at 10 % compounded annually?

QUESTION 15
Find the amount of an annuity if payment of Rs 5,000 each in his deposit account that pays 8 % interest per years. Find out the future value of annuity at the end of 4 years.

QUESTION 16
Mr. Lalu is required to pay four equal annual payments of Rs.5000 each in his deposit account that pays 8 % interest per year. Find out the future value of annuity at the end of 4 years.

QUESTION 17
Calculate is Rs. 10,000 is invested at interest rate of 12% per annum, what is the amount after 3 years if the compounding of interest is done?
1) Annually
2) Semi-annually
3) Quarterly

QUESTION 18

Ascertain the compound value and compound interest of an amount of Rs 75,000 at 8 percent compounded semiannually for 5 years.

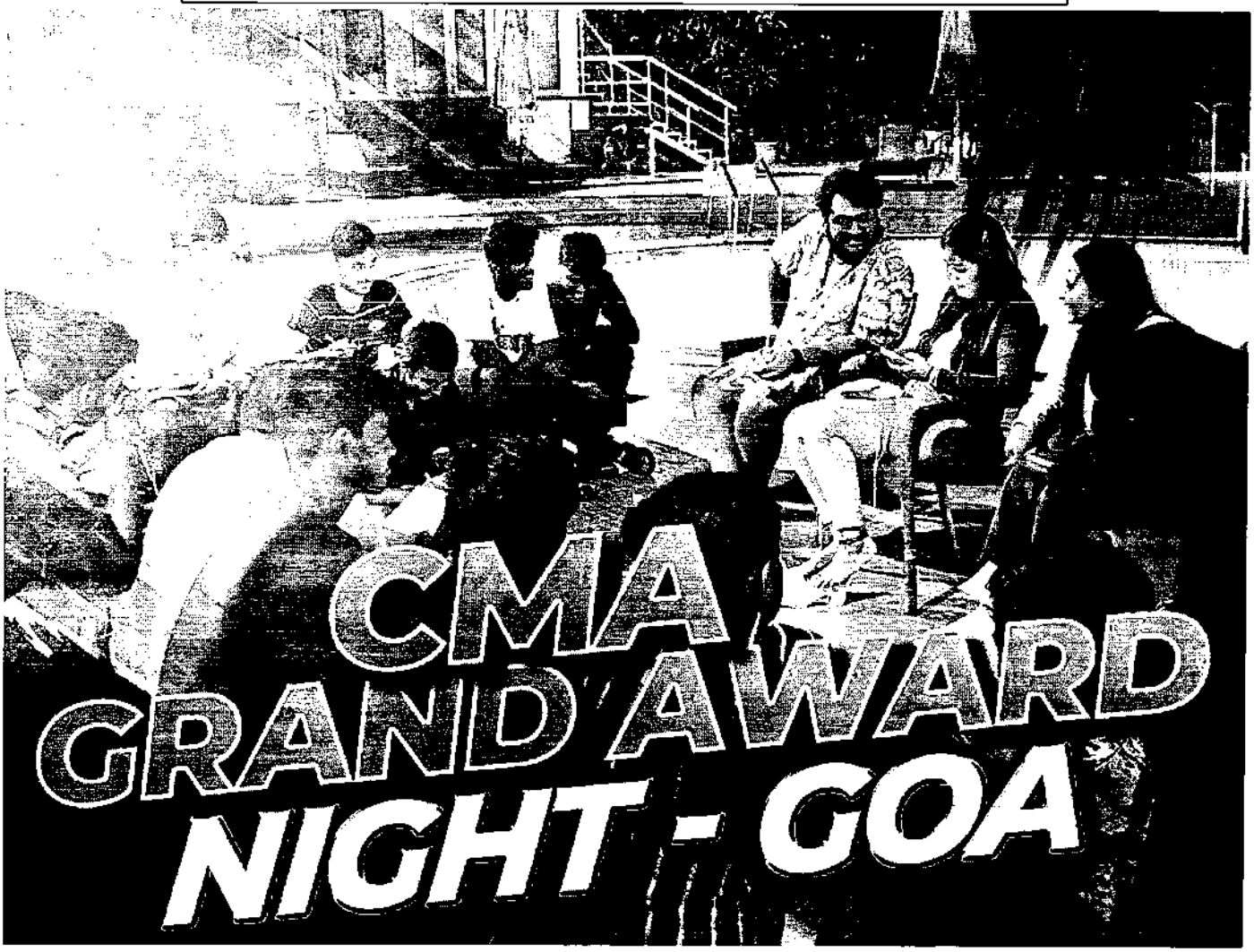
QUESTION 19

Mrs. Pinky is invested Rs. 2,40,000 at annual rate of interest of 10 %. What is the amount after 3 years if the compounding is done?

1) Annually

2) Semi-annually

CMA STUDENTS AND TEAM
AAC CELEBRATING SUCCESS
OF CMA INTER CLEARED
STUDENT IN GOA



PROMISE MADE BY AKASH SIR IN
LAST SUCCESS BATCH IS DELIVERED

.....NEXT CAN BE YOU.

CHAPTER 2B - CAPITAL BUDGETING

Success of finance mainly depends on proper decision making in respect of investment of funds. In general decision-making means selecting the best alternatives among all available alternatives based on analysing the positive sides and negative sides of each alternative. In financial management, capital budgeting is decision making technique. Capital budgeting decision may be defined as firm's decisions to invest its current funds most efficiently in long term activities in anticipation of an expected flow of future benefits over a series of year. On behalf of financial management, an effective decision should be taken on how and where the available fund be invested.

Successful operation of any business depends upon the investment of resources in such a way as to bring in benefits or best possible returns from any investment. An investment can be simply defined as an expenditure in cash or its equivalent during one or more time periods in anticipation of enjoying a net inflow of cash or its equivalent in some future time period or periods. An appraisal of investment proposals is necessary to ensure that the investment of resources will bring in desired benefits in future. If the financial resources were in abundance, it would be possible to accept several investment proposals which satisfy the norms of approval or acceptability. Since resources are limited, a choice has to be made among the various investment proposals by evaluating their comparative merit. It is apparent that some techniques should be followed for making appraisal of investment proposals. Capital Budgeting is one of the appraising techniques of investment decisions. Capital budgeting is defined as the firm's decision to invest its current funds most efficiently in long term activities in anticipation of an expected flow of future benefits over a series of years. It should be remembered that the investment proposal is common both for fixed assets and current assets. Mainly, the firm's capital budgeting decisions will include addition, disposition, modification and replacement of fixed assets.
Some important definitions of capital budgeting are:

Charles. T. Horngren defined capital budgeting as 'long-term planning for making and financing proposed capital out lay.'

According to **Keller and Ferrara**, 'capital Budgeting represents the plans for the appropriation and expenditure for fixed asset during the budget period.'

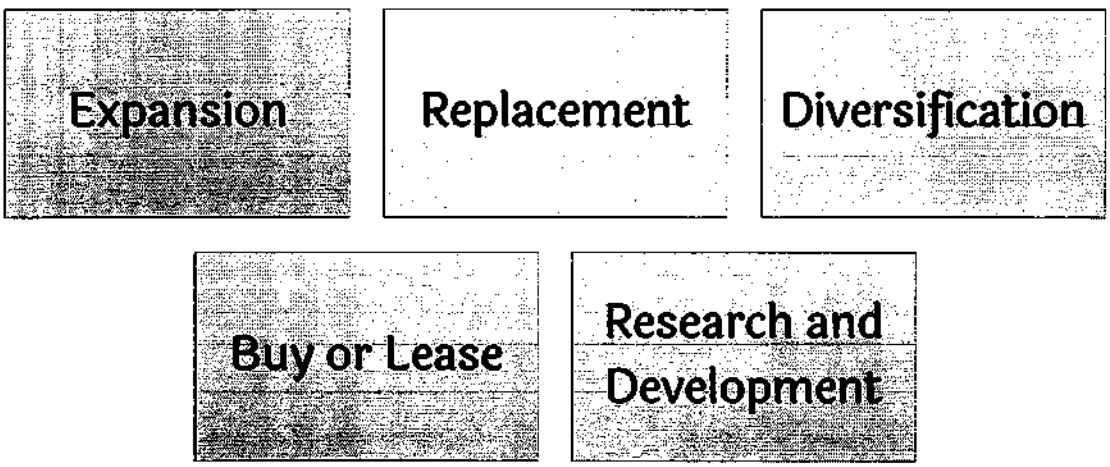
Robert N. Anthony defined as 'capital budget is essentially a list of what management believes to be worthwhile projects for the acquisition of new capital assets together with the estimated cost of each product.'

- **Nature of Capital Budgeting Decisions**

The term capital budgeting is used interchangeably with capital expenditure decision, capital expenditure management, long-term investment decision, management of fixed assets and so on. Mainly, capital budgeting decisions related to fixed assets or long-term assets which by definition refer to assets which are in operation, and yield a return, over a period of time, usually, exceeding one year. They, therefore, involve a current outlay or series of outlays of cash resources in return for an anticipated flow of future benefits. In other words, the system of capital budgeting is employed to evaluate expenditure decisions which involve current outlays but are likely to produce benefits over a period of time longer than one year. These benefits may be either in the form of increased revenues or reduced costs. Capital expenditure management, therefore, includes addition, disposition, modification and replacement of fixed assets. From the preceding discussion may be deduced the following basic features of capital budgeting: (i) potentially large anticipated benefits; (ii) a relatively high degree of risk; and (iii) a relatively long time period between the initial outlay and the anticipated returns.

- **Importance or Need of Capital Budgeting Decisions**

An organisation has huge of fund to invest. As a finance manager, what you will do? You have to select the fund where you will invest your fund. Here, the capital budgeting decisions plays an important role. Capital budgeting is important because it creates accountability and measurability. Any organisation that seeks to invest its resources in a project without understanding the risks and returns involved would be held as irresponsible by its owners or shareholders. If this decision proves wrong, it may result huge loss for the organisation. The selection of the most profitable project of capital investment is the key function of financial manager or finance team of any organisation. The decisions taken by the management in this area affect the operations of the firm for many years. Capital budgeting decisions may be generally needed for the following purposes:



(a) Expansion: The firm requires additional funds to invest in fixed assets when it intends to expand the production facilities in view of the increase in demand for their product in near future. Accordingly, the current assets will increase. In case of expansion the existing infrastructure – like plant, machinery and other fixed assets is inadequate, to carry out the increased production volume. Thus, the firm needs funds for such project. This will include not only expenditure on fixed assets (infrastructure) but also an increase in working capital (current assets).

(b) Replacement: The machines and equipment used in production may either wear out or may be rendered obsolete due to new technology. The productive capacity and competitive ability of the firm may be adversely affected. The firm needs funds or modernization of a certain machines or for renovation of the entire plant etc., to make them more efficient and productive. Modernization and renovation will be a substitute for total replacement, where renovation or modernization is not desirable or feasible, funds will be needed for replacement.

(c) Diversification: If the management of the firm decided to diversify its production into other lines by adding a new line to its original line, the process of diversification would require large funds for long-term investment. For example, ITC and Philips company for their diversification.

(d) Buy or Lease: This is a most important decision area in financial management whether the firm acquire the desired equipment and building on lease or buy it. If the asset is acquired on lease, there have to be made a series of annual or monthly rental payments. If the asset is purchased, there will be a large initial commitment of funds, but not further payments. The decision-making area is which course of action will be better to follow? The costs and benefits of the two alternative methods should be matched and compared to arrive at a conclusion.

(e) Research and Development: The existing production and operations can be improved by the application of new and more sophisticated production and operations management techniques. New technology can be borrowed or developed in the laboratories. There is a greater need of funds for continuous research and development of new technology for future benefits or returns from such investments.

- **Significance of Capital Budgeting Decisions**

The key function of the financial management is the selection of the most profitable portfolio of capital investment. It is the most important area of decision-making of the financial manager because any action taken by the manger in this area affects the working and the profitability of the firm for many years to come. Capital budgeting decisions are considered important for many reasons. Some of them are discussed below:

(a) Crucial Decisions: Capital budgeting decisions are crucial, affecting all the departments of the firm. So, the capital budgeting decisions should be taken very carefully.

(b) Long-run Decisions: The implications of capital budgeting decisions extend to a longer period in the future. The consequences of a wrong decision will be disastrous for the survival of the firm.

(c) Large Amount of Funds: Capital budgeting decisions involve spending large amount of funds. As such proper care should be exercised to see that these funds are invested in productive purchases.

(d) Rigid: Capital budgeting decision cannot be altered easily to suit the purpose. Because of this reason, when once funds are committed in a project, they are to be continued till the end, loss or profit no matter.

(e) Cash Forecast: Capital investment requires substantial funds which can only be arranged by making determined efforts to ensure their availability at the right time. Thus, it facilitates cash forecast.

(f) Wealth-Maximization of Shareholders: The impact of long-term capital investment decisions is far reaching. It protects the interests of the shareholders and of the enterprise because it avoids over-investment and under-investment in fixed assets. By selecting the most profitable projects, the management facilitates the wealth maximization of equity share-holders.

(g) Helps in Policy Making: It facilitates the management in making of the long-term plans to assist in the formulation of general policy.

- **Process of Capital Budgeting**

Capital budgeting process refers to the total process of generating, evaluating, selecting and following up on capital expenditure alternatives. The firm allocates or budgets financial resources to new investment proposals.

Basically, the firm may be confronted with three types of capital budgeting decisions: (i) the accept-reject decision; (ii) the mutually exclusive choice decision; and (iii) the capital rationing decision. The major steps in the capital budgeting process are given below. These are (a) Generation of project; (b) Evaluation of the project; (c) Selection of the project and (d) Execution of the project. The capital budgeting process may include a few more steps. As each step is significant, they are usually taken by the top management.

The Steps are discussed below:

(a) Generation of Project: Depending upon the nature of the firm, investment proposals can emanate from a variety of sources. Projects may be classified into five categories.

(i) New products or expansion of existing products.

(ii) Replacement of equipment or buildings.

(iii) Research and development.

(iv) Exploration.

(v) Others like acquisition of a pollution control device etc.

Investment proposals should be generated for the productive employment of firm's funds. However, a systematic procedure must be evolved for generating profitable proposals to keep the firm healthy.

(b) Evaluation of the Project: The evaluation of the project may be done in two steps. First the costs and benefits of the project are estimated in terms of cash flows and secondly the desirability of the project is judged by an appropriate criterion. It is important that the project must be evaluated without any prejudice on the part of the individual. While selecting a criterion to judge the desirability of the project, due consideration must be given to the market value of the firm.

(c) Selection of the Project: After evaluation of the project, the project with highest return should be selected. There is no hard and fast rule set for the purpose of selecting a project from many alternative projects. Normally the projects are screened at various levels. However, the final selection of the project vests with the top-level management.

(d) Execution of Project: After selection of a project, the next step in capital budgeting process is to implement the project. Thus, the funds are appropriated for capital expenditures. The funds are spent in accordance with appropriations made in the capital budget funds for the purpose of project execution should be spent only after seeking format permission for the controller. The follow–up comparison of actual performance with original estimates ensures better control.

Thus, the top management should follow the above procedure before taking any capital expenditure decision.

- **Capital Budgeting Decisions (Situation Decisions)**

On the basis of situation decision, firm may be confronted with three types of capital budgeting decisions: (a) Accept-reject Decision; (b) Mutually Exclusive Project Decisions and (iii) Capital Rationing Decision. These are discussed below:

(a) Accept-reject Decision

Business firm is confronted with alternative investment proposals. That means you have to take decision whether the project is accepted or rejected. So, accept-reject decision is a fundamental decision in capital budgeting. If the project is accepted, the firm would invest in it, if the proposal is rejected, the firm does not invest in it. In general, all those proposals which yield a rate of return greater than a certain required rate of return or cost of capital are accepted and the rest are rejected. By applying this criterion, all independent projects are accepted. Under this decision criterion, all independent projects that satisfy the minimum investment criterion should be implemented.

(b) Mutually Exclusive Project Decision

'Mutually exclusive projects' is used generally in the capital budgeting process where the firms choose a single project on the basis of certain parameters out of the set of the projects where acceptance of one project will lead to rejection of the other projects. In case of mutually exclusive projects, the project with highest net present value or the highest IRR or the lowest payback period is preferred and a decision to invest in that select project excluded all other projects from consideration even if they individually have positive NPV or higher IRR than hurdle rate or shorter payback period than the reference period.

(c) Capital Rationing Decision

Capital rationing refers to the choice of investment proposals under financial constraints in terms of a given size of capital expenditure budget. The objective of capital rationing is to select the combination of projects would be the maximisation of the total NPV. It is concerned with the selection of a group of investment proposals out of many investment proposals acceptable under the accept-reject decision. Capital rationing employs ranking of the acceptable investment projects. The projects can be ranked on the basis of a predetermined criterion such as the rate of return. The projects are ranked in the descending order of the rate of return.

- **Identification of Cash Flows and Forecasting**

Capital budgeting is concerned with investment decisions which yield return over a period of time in future. As we know, capital budgeting decision mainly focuses on cash flows rather than profits. Capital budgeting involves identifying the cash inflows and cash out flows rather than accounting revenues and expenses flowing from the investment. So, capital budgeting involves in determination of cash flows. Cash flows are the most important factor in a capital investment decision. Investment decision has to take place at present, not in future and therefore capital expenditure is a cash-flow concept, rather than a profit-based concept. That's why computation of cash flow decides the success or failure of any investment decision.

To corroborate the same, we can mention about non-cash expenses like depreciation which are not included in capital budgeting (except to the extent they impact tax calculations for 'after tax' cash flows) because they are not cash transactions. Instead, the cash flow expenditures associated with the actual purchase and/or financing of a capital asset are included in the analysis.

Capital budgeting methods consider adjustments for the time value of money. Capital investments create cash flows that are often spread over several years into the future. This is the main reason of forecasting of cash flows. So, identification of forecasted cash flows is very important in capital budgeting decisions.

However, cash flow forecasting is the process of estimating the flow of cash in and out of a business over a specific period of time. An accurate cash flow forecast helps companies predict future cash positions.

Forecasting of cash flow is the responsibility of a business's finance team. The best way to forecast cash flow for your business depends on business's objectives, investor's requirements, and the availability of information within the organization.

Financial analysis of long-term investment decisions basically involves estimating cost of the asset / project and benefits receivable thereon over the economic life of the asset or project for which investments are made. Estimating cost is relatively easier as it is made in the current period, but estimating benefits is very difficult as it relates to future period involving risk and uncertainty.

For estimating benefits, two alternatives are available: (i) Cash Inflow and (ii) Accounting Profit. The cash flow approach is considered as superior to accounting profit approach and cash flows are theoretically better measures of net economic benefits associated with the long-term investments. Moreover, as cost of investment is represented by cash outflows, benefit out of such investment is better represented through cash inflows. The difference between the two measures – cash flow and accounting profit – arises because of inclusion of some non-cash items, e.g., depreciation, in determining accounting profit. Moreover, accounting profit differs depending on accounting policies, procedures, methods (e.g., method of depreciation, method of inventory valuation) used.

Moreover, the cash flow approach takes cognizance of the time value of money. Usually, accrual concept is followed in determining accounting profit, e.g., revenue is recognized when the product is sold, not at the time when the cash is collected from such sale; similarly, revenue expenditure is recognized when it is incurred, not at the time actual payment is made. Thus, the cash flows as a measure of cost and benefit of an investment proposal is better to use for evaluating the financial viability of a proposal and for this purpose, the incremental cash flows are considered. For new investment decisions, all the cash flows are incremental but in case of investment decisions relating to replacement of old assets by the new ones, the incremental costs (cash outflows) and incremental benefits (cash inflows) are to be estimated.

The cash flows associated with a proposal may be classified into: (i) Initial Cash Flow, (ii) Subsequent Cash Flow and (iii) Terminal Cash Flow. These are discussed below:

- **Initial Cash Flow:**

Any long-term investment decision will involve large amount of initial cash outlay. It reflects the cash spent for acquiring the asset, known as initial cash outflow. For estimating the initial cash outflow, the following aspects are taken into consideration.

(a) The cost of the asset, installation cost, transportation cost and any other incidental cost, i.e., all the costs to be incurred for the asset in order to bring it to workable condition, are to be taken into consideration.

(b) Sunk cost which has already been incurred or committed to be incurred, hence, which has no effect on the present or future decision, will be ignored as it is irrelevant cost for the decision. For example, a plot of and which is owned by the firm and lying idle is the sunk cost, hence, the cost of such plot of land will not be considered for estimating the initial cost. But, if it has any alternative use, the opportunity cost of such alternative use is the relevant cost and such opportunity cost will have to be considered. On the other hand, if a new plot of land is required to be purchased for the proposal, the cost of such plot of land is the relevant cost and will form part of initial investment.

(c) For investment decisions relating to replacement of an existing asset usually involve salvage value which is considered as cash inflow and subtracted from the cash outflow relating to the installation of the new asset. If the existing asset is the only asset in the concerned block of asset, the incidence of income tax on gain or loss on sale of the existing asset is also to be considered, as the block of asset will cease to exist due to sale of the asset. The tax impact on gain on sale of asset represent burden of tax, hence cash outflow and tax impact on loss on sale represent savings of tax, hence, cash inflow. Therefore, tax on gain on sale of asset has to be added and tax on loss on sale has to be subtracted in order to determine initial cash outflow. However, if there are other assets in the same block, the question of gain or loss on sale of asset will not arise, only the sale proceed from sale of old asset will be deducted from the total initial cash outflow.

(d) Change in working capital requirement due to the new investment decision requires to be considered. If additional working capital is required, it will increase the initial cash outflow. On the other hand, in a replacement situation, if requirement of working capital is decreased, such decrease in working capital requirement will reduce the total initial cash outflow.

Initial Cash Outflow:
Cost of the new asset including installation, transportation and other incidental costs related to the asset.
(±) Change in working capital requirement (Addition for increase, Subtraction for decrease)
(−) Salvage value of the old asset (in case of replacement of old asset)
(−) Tax savings for loss on sale of asset (if the block ceases to exist due to sale of old asset), or
(+) Tax payable for profit on sale of asset (if the block ceases to exist due to sale of old asset)

(ii) Subsequent Cash Flow:

In conventional cash flow, cash outflow occurs at the initial period and a series of cash inflows occur in the subsequent periods. On the other hand, non-conventional cash flow involves intermittent cash outflows in the subsequent periods also for major repairing, additional working capital requirement, etc. Therefore, apart from estimating initial cash flow, subsequent cash flows are also required to be estimated. For estimating future cash inflows, i.e., cash inflows of the subsequent periods, the following aspects need to be considered.

Cash inflows are to be estimated on an after-tax basis.

Depreciation being a non-cash item is to be added back to the amount of profit after taxes.

Interest being financial charge will be excluded for estimating cash inflow for investment decisions (Interest Exclusion Principal). However, interest (on debt capital) is taken into consideration for determining weighted average cost of capital which is used for discounting the cash inflows to arrive at its present value.

Calculation of Net Cash Inflow after Taxes (CFAT)

Particulars	Amount (₹)	Amount (₹)
Net Sales Revenue		XXX
Less: Cost of Goods Sold	XXX	
Less: General Expenses (other than Interest)	XXX	
Less: Depreciation	XXX	
Net Cash Inflow after Taxes [CFAT = EBIT (1 − t) + Depreciation [where, t is income tax rate] If PAT is taken from accounting records, which is arrived at after charging Interest, 'Interest Net of Taxes' is to be added back along with the amount of Depreciation, i.e., PAT after charging Interest		XXX
Add: Depreciation		XXX
Add: Interest Net of Taxes (i.e., Total Interest − Tax on Interest)		XXX
Net Cash Inflow after Taxes		XXX

QUESTION 1:

From the following information calculate Net Cash Inflow after Taxes.

Particulars	Amount (₹)	Amount (₹)
Net Sales Revenue		10,00,000
Less: Cost of Goods Sold	5,00,000	
Less: General Expenses (other than Interest)	2,00,000	
Less: Depreciation	1,00,000	8,00,000
PBIT or EBIT		2,00,000
Less: Interest		50,000
PBT or EBT		1,50,000
Less: Tax (30%)		45,000
PAT		1,05,000

(iii) Terminal Cash Flow:

In the last year, i.e., at the end of the economic life of the asset or at the time of termination of the project, usually some additional cash inflows occur in addition to the operating cash inflows, viz., salvage value of the asset, release of working capital (the working capital that is introduced at the beginning will no longer be required at the end of the life of the asset or at the termination of the project). Moreover, tax impact on gain or loss on sale of the asset if the block of asset ceases to exist.

Terminal Cash Inflow:	
Salvage or Scrap Value	XXX
Add: Tax Savings on Loss on Sale of Asset	XXX
Less: Tax Burden on Gain on Sale of Asset	XXX
Add: Release of Working Capital	XXX

Relevant Cost Analysis for Projects

Relevant costs or revenues are those expected future costs or revenues that differ among alternative courses of action. It is a future cost/revenue that would arise as a direct consequence of the decision under review and it differs among the alternative courses of action. Any decision making relates to the future as nothing can be done to alter the past and the function of decision making is to select courses of action for the future.

Relevant cost analysis or relevant costing is used for various managerial decisions like:

- Make or buy decision
- Accepting or rejecting a special order
- Continuing or discontinuing a product line
- Using scarce resources optimally, etc.

In the context of investment decisions, incremental cash flows are considered as relevant. The sunk costs, which have already been incurred, or committed costs which are committed to be incurred in future, are considered as irrelevant, as it will have no impact on whatever decisions are taken. However, the opportunity costs, imputed costs, out of pocket costs, avoidable costs and differential costs are relevant.

QUESTION 2:

A company is considering replacement of one of its old machines, purchased three years ago at a cost of ₹5,00,000 with a life of 5 years. It follows straight line method of depreciation. Annual revenue from the sale of the product manufactured using the machine is ₹5,50,000 and the annual operating cost is ₹4,00,000. The current salvage value of the machine is ₹ 1,00,000. The cost of the new machine is ₹3,00,000 and its salvage value at the end of its life 2 years is nil. The annual operating cost of the new machine is estimated at ₹2,30,000 and the revenue is expected to be same as to that of the old machine.

Identify relevant costs and revenues if any form the above information.

The capital budgeting appraisal methods or techniques for evaluation of investment proposals will help the company to decide the desirability of an investment proposal, depending upon their relative income generating capacity and rank them in order if their desirability. These methods provide the company a set of normal method should enable to measure the real worth of the investment proposal. Appraisal of investment proposals are based on objective, quantified and economic costs and benefits.

Characteristics of an Appraisal Method

The appraisal methods should possess several good characteristics, which are mentioned as under.

(a) It should help the company to rank the investment proposals in order of their desirability.

(b) It should provide a technique for distinguishing between an acceptable and non-acceptable project.

(c) It should provide criteria to solve the problem of choosing among alternative projects.

(d) It should recognize the importance of time value of money i.e. bigger benefits are preferable to smaller ones and early benefits are preferable to later benefits.

(e) It should provide the criteria for the selection of investment proposals.

(f) It should take into account the pattern of cash flows.

The methods of appraising capital expenditure proposals can be classified into two broad categories:

(a) Traditional or Non-Discounted Cash Flow (Non-DCF) Techniques

1. Payback Period
2. Payback Reciprocal
3. Payback Profitability
4. Average or Accounting Rate of Return (ARR)

(b) Discounted Cash Flow (DCF) or Time-Adjusted Techniques

1. Net Present Value (NPV)
2. Profitability Index
3. Internal Rate of Return (IRR)
4. Discounted Payback Period
5. Modified NPV
6. Modified IRR
7. Adjusted Present Value.

- **Non-discounted or Traditional Techniques**

These methods are based on the principles to determine the desirability of an investment project on the basis of its useful life and expected returns. These methods depend upon the accounting information available from the books of accounts. These will not take into account the concept of 'time value of money' which is a signification factors to desirability of a project in terms of present value.

1. **Payback Period (PBP) Method**

The PBP method is the simplest way to budget for a new project. It measures the amount of time it will take to earn enough cash inflows from your project to recover what you invested. It is the most popular and widely recognized traditional methods of evaluating the investment proposals. It can be defined as the number of years to recover the original capital invested in a project. According to Weston and Brigham, the PBP is the number of years it takes for the firm to recover its original investment by net returns before depreciation, but after taxes:

(a) When cash flows are uniform:

If the proposed project's cash inflows are uniform the following formula can be used to calculate the payback period.

$$\text{Payback Period} = \frac{\text{Annual Cash Inflows}}{\text{Initial Investment}}$$

(b) When cash flows are not uniform

When the project's cash inflows are not uniform, but vary from year to year payback period is calculated by the process of cumulating cash inflows till the time when cumulative cash flows become equal to the original investment outlay.

ADVANTAGES: The following are the advantages of the payback period method:

(i) Easy to calculate: It is one of the easiest methods of evaluating the investment projects. It is simple to understand and easy to compute.

(ii) Knowledge: The knowledge of payback period is useful in decision-making, the shorter the period better the project.

(iii) Protection from loss due to obsolescence: This method is very suitable to such industries where mechanical and technical changes are routine practice and hence, shorter payback period practice avoids such losses.

(iv) Easily availability of information: It can be computed on the basis of accounting information, what is available from the books.

DISADVANTAGES: However, the payback period method has certain disadvantages and limitations:

(i) Failure in taking cash flows after payback period: This method is not taking into account the cash flows received by the company after the payback period.

(ii) Not considering the time value of money: It does not take into account the time value of money.

(iii) Non-considering of interest factor: It does not take into account the interest factor involved in the capital outlay.

(iv) Maximisation of market value not possible: It is not consistent with the objective of maximizing the market value of share.

(v) Failure in taking magnitude and timing of cash inflows: It fails to consider the pattern of cash inflows i.e., the magnitude and timing of cash inflows.

Accept-Reject Decision:

The payback period can be used as an accept or reject criterion as well as a method of ranking projects. The payback period is the number of years to recover the investment made in a project. If the payback period calculated for a project is less than the maximum payback period set-up by the company, it can be accepted. As a ranking method it gives the highest rank to a project which has the lowest payback period, and the lowest rank to a project with the highest payback period. Whenever a company faces the problem of choosing among two or more mutually exclusive projects, it can select a project on the basis of payback period, which has shorter period than the other projects.

With equal and unequal cash flows

QUESTION 3.

a) A project has an initial investment of ₹1,00,000. It will produce Cash Flow after Tax of ₹25,000 per annum for seven years. Compute the Payback Period for the Project.

b) Project M has an initial investment of ₹10 lakhs. Its Cash Flows for five years are ₹3,00,000, ₹3,60,000, ₹3,00,000 ,₹2,64,000 & ₹2,40,000. Determine Payback period assuming a discount rate of 10% p.a.

QUESTION 4.

Project Khalifa has an initial investment of ₹10 lakhs. Its Cash flow for five years are ₹3,00,000, ₹3,60,000 ₹3,00,000 ₹2,64,000 & ₹2,40,000. Determine Payback period assuming a discount rate of 10% p.a.

QUESTION 5. (Homework sums)

Pioneer Ltd. is considering two mutually-exclusive projects. Both require an initial cash outlay of ₹ 10,000 each for machinery and have a life of 5 years. The company's required rate of return is 10% and it pays tax at 50%. The projects will be depreciated on a straight-line basis. The net cash flows (before taxes) expected to be generated by the projects and the present value (PV) factor (at 10%) are as follows:

	2017 (Year 1)	2018 (Year 2)	2019 (Year 3)	2020 (Year 4)	2021 (Year 5)
Project 1 (₹)	4,000	4,000	4,000	4,000	4,000
Project 2 (₹)	6,000	3,000	3,000	5,000	5,000
PV factor (at 10%)	0.909	0.826	0.751	0.683	0.621

You are required to calculate the Payback Period of each project.

QUESTION 6. (Homework Sums)

A project with an initial investment of ₹ 50 Lakh and life of 10 years, generates CFAT of ₹ 10 Lakh per annum. Calculate Payback Reciprocal of the project.

3. Payback Profitability

As the profitability beyond the Payback Period is not taken into consideration in Payback Period method, the projects with higher Payback period are rejected though such projects with longer life may generate higher benefits after recovering its initial investment. In Payback Profitability method, the profitability beyond the payback period is considered and projects generating higher benefits after the recovery of initial investment are considered for selection.

Payback Profitability = Net Cash Inflow after Taxes after recovering the Initial Investment, i.e., Total Net Cash Inflow after Taxes – Initial Investment.

4. Accounting or Average Rate of Return (ARR) Method

This technique uses the accounting information revealed by the financial statements to measure the profitability of an investment proposal. It can be determined by dividing the average income after taxes by the average investment. According to Solomon, Accounting Rate of Return can be calculated as the ratio of average net income to the initial investment.

On the basis of this method, the company can select all those projects whose ARR is higher than the minimum rate established by the company. It can reject the projects with an ARR lower than the expected rate of return. This method also helps the management to rank the proposal on the basis of ARR.

Accounting Rate of Return (ARR) = Average Net Income / Original Investment

Or,

Accounting Rate of Return (ARR) = Average Net Income / Average Investment

Advantages: The following are the advantages of ARR method:

(i) It is very simple to understand and calculate;

(ii) It can be readily computed with the help of the available accounting data;

(iii) It uses the entire stream of earnings to calculate the ARR.

Disadvantages: This method has the following limitations:

(i) It is not based on cash flows generated by a project;

(ii) This method does not consider the objective of wealth maximization;

(iii) It ignores the length of the project's useful life;

(iv) If does not take into account the fact that the profile can be re-invested; and

(v) It ignores the time value of money.

Accept-Reject Decision

With the help of the ARR, the financial decision maker can decide whether to accept or reject the investment proposal. As an accept-reject criterion, the actual ARR would be compared with a pre-determined or a minimum required rate of return or cut-off rate. A project would qualify to be accepted if the actual ARR is higher than the minimum desired ARR. Otherwise, it is liable to be rejected. Alternatively, the ranking method can be used to select or reject proposals. Thus, the alternative proposals under consideration may be arranged in the descending order of magnitude, starting with the proposal with the highest ARR and ending with the proposal having the lowest ARR. Obviously, projects having higher ARR would be preferred to projects with lower ARR.

QUESTION 7.

a) Compare ARR if Cost of asset is ₹ 2,00,000. Useful life = 5 years, Cash Flows after taxes = ₹ 86,000 p.a.

b) Project A requires an investment of ₹ 10 Lakhs and yields profit after Tax and Depreciation as follows

Year	1	2	3	4	5
Profit after Tax & Depreciation	50,000	75,000	1,25,000	1,30,000	80,000

At the end of 5 years, the plant can be sold for ₹ 80,000. You are required to calculate ARR.

QUESTION 8.

Determine the average rate of return from the following data of two machines, A and B.

Particulars	Machine - A (₹)	Machine - B (₹)
Cost	56,125	56,125
Annual estimated income after depreciation and income tax:		
Year 1	3,375	11,375
Year 2	5,375	9,375
Year 3	7,375	7,375
Year 4	9,375	5,375
Year 5	11,375	3,375
Total	36,875	36,875
Estimated life (years)	5	5
Estimated salvage value	3,000	3,000

Depreciation has been charged on straight line basis.

- **Profitability Index (PI) Method**

Profitability index method measures the present value of benefits for every rupee investment. In other words, it involves the ratio that is created by comparing the ratio of the present value of future cash flows from a project to the initial investment in the project. This method is also known as 'Benefit Cost Ratio'. According to Van Horne, the Profitability Index of a project is the ratio of the present value of future net cash inflows to the present value of cash outflows.

Actually, the profitability index is just a fraction. The profitability index is equal to the present value of future cash flows divided by the cost of the investment. Present value of future cash flows simply means the money that you expect to make from the investment. Initial investment refers to the money that the firm have to put down to make that money.

The formula for the net present value can be written as:

$$\text{Profitability Index} = \frac{\text{Present value of the expected cash inflow}}{\text{Present value of cash outflow or Initial Investment}}$$

Accept-Reject Decision:

If the Profitability Index (PI) is greater than or equal to one, the project should be accepted otherwise rejected. Specifically, if the PI is greater than 1, the project generates value and the company may want to proceed with the project. If the PI is less than 1, the project destroys value and the company should not proceed with the project. If the PI is equal to 1, the project breaks even and the company is indifferent between proceeding or not proceeding with the project.

So, the higher the profitability index, the more attractive the investment.

The accept/reject criterion under the PI method is as follows:

If, PI>1	then, Accept
If, PI<1	then, Reject
If, PI=0	then, May accept or reject

Advantages: The advantages of this method are:

(i) It takes into account the time value of money

(ii) It helps to accept / reject investment proposal on the basis of value of the index.

(iii) It is useful to rank the proposals on the basis of the highest /lowest value of the index.

(iv) It takes into consideration the entire stream of cash flows generated during the life of the asset.

Disadvantages: However, this technique suffers from the following disadvantages:

(i) It is somewhat difficult to compute.

(ii) It is difficult to understand the analytical of the decision on the basis of profitability index.

QUESTION 9.

Nano company is evaluating an investment proposal of ₹ 3,06,000 with expected cash flows as-

Year	1	2	3	4
CFAT	1,00,000	1,20,000	1,50,000	1,00,000

The Co.'s Cost of Capital is 10%. Compute NPV & PI for this project.

QUESTION 10. (Homework Sum)

A project requires an initial investment of ₹ 225,000 and is expected to generate the following net cash inflows:

Year 1 (2018): ₹95,000; Year 2 (2019): ₹80,000; Year 3 (2020): ₹60,000; Year 4 (2021): ₹ 55,000.

Compute profitability index of the project if the appropriate discount rate for this project is 12%.

- **Internal Rate of Return (IRR) Method**

Internal Rate of Return (IRR) is one such technique of capital budgeting. It is the rate of return at which the net present value of a project becomes zero. We call it 'internal' because it does not take any external factor (like inflation etc.) into consideration. IRR method follows discounted cash flow technique which takes into account the time value of money. The internal rate of return is the interest rate which equates the present value of expected future cash inflows with the initial capital outlay. In other words, it is the rate at which NPV is equal zero.

Whenever a project report is prepared, IRR is to be worked out in order to ascertain the viability of the project.

This is also an important guiding factor to financial institutions and investors.

For the computation of the internal rate of return, we use the same formula as NPV. To derive the IRR, we apply trial and error method to make the difference between the present value of expected future cash inflows with the initial investment zero.

IRR refers to that discount rate (i) such that

Present value of cash inflows = Present value of cash outflows

Or, Present value of cash inflows – present value of cash outflows = 0

Or, NPV = 0

Therefore, at IRR, NPV = 0 and PI = 1.

The formula for computation of IRR using NPV is written as under:

$$C = \frac{A_1}{(1+r)^1} + \frac{A_2}{(1+r)^2} + \frac{A_3}{(1+r)^3} \dots\dots\dots + \frac{A_n}{(1+r)^n}$$

Where,

C = Initial Capital outlay

A1, A2, A3 etc. = Expected future cash inflows at the end of year 1, 2, 3 and so on.

r = Internal Rate of Return

n = Number of years of project.

$$IRR = \frac{\text{Present value of the expected cash inflows}}{(1-i)^n} + \text{Initial Investment}$$

Where,

i = Discount rate

n = No. of periods

In the above equation 'r' is to be solved in order to find out IRR.

Computation of IRR

The IRR is to be determined by trial-and-error method. The following steps can be used for its computation.

(i) Compute the present value of the cash flows from an investment, by using arbitrary by selected interest rate.

(ii) Then compare the present value so obtained with capital outlay.

(iii) If the present value is higher than the cost, then the present value of inflows is to be determined by using higher rate.

(iv) This procedure is to be continued until the present value of the inflows from the investment are approximately equal to its outflow.

(v) The interest rate that brings about equality is the internal rate of return.

The rate at which the cost of investment and the present value of future cash flows match will be considered as the ideal rate of return. A project that can achieve this is a profitable project. In other words, at this rate the cash outflows and the present value of inflows are equal, making the project attractive.

Remember, the internal rate of return is using the interpolation technique to calculate it and it is very important to understand this concept so that you can get a better understanding of how IRR works. In order to find out the exact IRR between two near rates, the following formula is to be used.

$$IRR = L + \frac{P_1 + C_0}{P_1 - P_2} \times D$$

Where, L = Lower rate of interest

P_1 = Present value at lower rate of interest

P_2 = Present value at higher rate of interest

C_0 = Cash outlay

D = Difference in rate of interest.

Accept-Reject Decision:

If the internal rate of return exceeds the required rate of return, then the project will be accepted. If the project's IRR is less than the required rate of return, it should be rejected. In case of ranking the proposals the technique of IRR is significantly used. The projects with highest rate of return are ranked as first compared to the lowest rate of return projects.

Thus, the IRR acceptance rules are –

Accept if IRR < k

Reject if or reject if IRR = k

May accept if IRR = k

Where, 'k' is the cost of capital.

Advantages: The following are the advantages of the IRR method:

(i) Consideration of time of money: It considers the time value of money.

(ii) Consideration of total Cash Flows: It taken into account the cash flows over the entire useful life of the asset.

(iii) Maximising of shareholders' wealth: It is in conformity with the firm's objective of maximizing owner welfare.

(iv) Provision for risk and uncertainty: This method automatically gives weight to money values which are nearer to the present period than those which are distant from it. Conversely, in case of other methods like 'Payback Period' and 'Accounting Rate of Return', all money units are given the same weight which is unrealistic. Thus, the IRR is more realistic method of project valuation. This method improves the quality of estimates reducing the uncertainty to minimum.

(v) Elimination of pre-determined discount rate: Unlike the NPV method, the IRR method eliminates the use of the required rate of return which is usually a pre-determined rate of cost of capital for discounting the cash flow consistent with the cost of capital. Therefore, the IRR is more reliable measure of the profitability of the investment proposals.

Limitation: The following are the limitations of the IRR:

(i) It is very difficult to understand and use

(ii) It involves a very complicated computational work

(iii) It may not give unique answer in all situations.

(iv) The assumption of re-investment of cash flows may not be possible in practice.

(v) In evaluating the mutually exclusive proposals, this method fails to select the most profitable project which is consistent with the objective of maximization of shareholders wealthy.

Both NPV and IRR are sound analytical tools of capital budgeting.Net present value (NPV) is the difference between the present value of cash inflows and the present value of cash outflows over a period of time. By contrast, the internal rate of return (IRR) is a calculation used to estimate the profitability of potential investments.

Sim...

(i) NPV and ... are two discounted cash flow methods used for evaluating investments or capital projects.

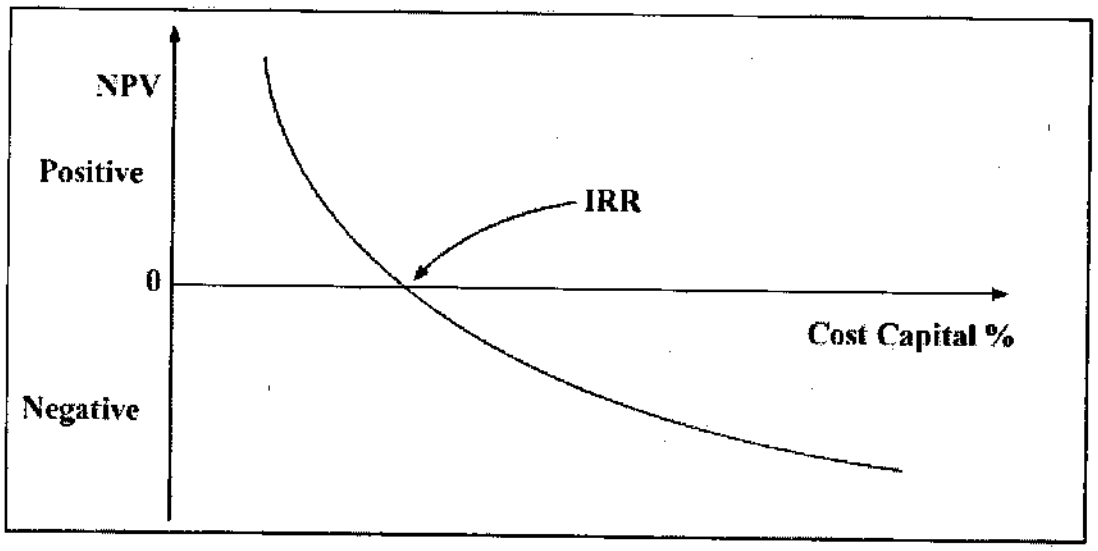
(ii) Both recognize the time valu...

(iii) Both take into account the cash flows ...ney.

(iv) Both are consistent with the objective of maxim... the entire life of the project.

(v) Both are difficult to calculate. ...he wealth of shareholders.

(vi) Both techniques may often give contradictory result in the case of ali... ...ive proposals which are mutually exclusive.



Contrast, i.e., Points of Difference -

(i) NPV uses the firm's cost of capital as interest rate. Unless the cost of capital is known, NPV method cannot be used. Calculating cost of capital is not required for computing IRR.

(ii) NPV may mislead when dealing with alternative projects or limited funds under the conditions of unequal lives. IRR allows a sound comparison of the project having different lives and different timings of cash inflows.

(iii) NPV may give different ranking in case of complicated projects as compared to IRR method.

(iv) NPV assumes that intermediate cash flows are re-invested at firm's cost of capital whereas IRR assumes that intermediate cash inflows are reinvested at the internal rate of the project.

(v) The results of IRR method may be inconsistent compared to NPV method, if the projects differ in their (a) expected lives or (b) investment or (c) timing of cash inflow.

(vi) IRR method favours short-lived project so long as it promises return in excess of cut-off rate whereas NPV method favours long-lived projects.

(vii) Sometimes IRR may give negative rate or multiple rates. NPV does not suffer from the limitation of multiple rates.

Recommendations -

The NPV method is generally considered to be superior theoretically because:

(i) It is simple to calculate as compared to IRR.

(ii) It does not suffer from the limitation of multiple rates.

(iii) NPV assumes that intermediate cash flows are reinvested at firm's cost of capital. The reinvestment

assumption of NPV is more realistic than IRR method.

But IRR method is favoured by some analysts because:

(i) It is easier to visualize and to interpret as compared to NPV.

(ii) Even in the absence of cost of capital, IRR gives an idea of project's profitability.

Note - Unless the cost of capital is known, NPV cannot be used.

(iii) IRR method is preferable to NPV in the evaluation of risky projects.

QUESTION 11.

A company proposes to install a machine involving a capital cost ₹ 3,60,000. The life of the Machine is 5 years and its salvage value at the end of the file is nil. The machine will produce the net operating income after depreciation of ₹ 68,000 p.a. The company's tax rate is 45%. Calculate IRR of the proposal. The PV factors for 5 years is as under.

Discounting Factor	14	15	16	17	18
Cumulative Factor	3.43	3.35	3.27	3.20	3.13

QUESTION 12.

Given below are the data on a capital project 'M'

Annual Cost of Saving - ₹ 60,000

Useful life – 4 years

Profitability Index – 1.064

Internal rate of return – 15%

Salvage value – 0

Calculate- i) Cost of Project

ii) Payback period

iii) Net Present Value

iv) Cost of Capital

QUESTION 13.

Sweety limited is considering to purchase a New Plant worth ₹ 80,00,000. The expected Net Cash Flows after taxes and before Depreciation are as follows (in ₹ Lakhs):

Year	1	2	3	4	5	6	7	8	9	10
Net Cash Flows	14	14	14	14	14	16	20	30	20	8

QUESTION 14.

Poplu Ltd is considering investing in a project. The expected in the project will be ₹ 2,00,000 with project life of 5 years & no salvage value. The expected Net Cash Inflows after Depreciation but before tax during the life of the project will be-

Year	1	2	3	4	5
₹	85,000	1,00,00	80,000	80,000	40,000

The project will be depreciated at 20% on Original Cost. The company is subject to 30% tax rate.

Calculate-

1. Payback Period
2. Average Rate of Return (ARR)
3. NPV & Net present value index, if cost of capital is 10%
4. IRR

QUESTION 15.

Potato company is considering the proposal of taking up a new project which requires an investment of ₹ 400 lakhs on Machinery and other assets. The Project is expected to yield the following Earnings (before deprecation & other taxes) over the next five years.

Year	1	2	3	4	5
Earnings (₹ in Lakhs)	160	160	180	180	150

The Cost of raising the additional capital is 12% and the assets have to be depreciated at 20% on 'Written Down Value' basis. The scrap value at the end of the five years period may be taken as zero. Income tax applicable to the company is 50%.

Calculate the projects NPV and advise the management to take appropriate decision.

Calculate the IRR of the project using the PV of ₹ 1 at 10%, 12%, 14% and 16% rates of Interest.

QUESTION 16.

Kashmira Ltd is considering the purchase of a machine which will perform operations which are at present performed by workers. Machine X & Y are the alternative models. The following details are available-

Particulars	Machine X	Machine Y
Cost of Machine	₹ 1,50,000	₹ 2,40,000
Estimated life of machine	5 years	6 years
Estimated cost of maintenance p.a.	₹ 7,000	₹ 11,000
Estimated cost of indirect material p.a.	₹ 6,000	₹ 8,000
Estimated Savings in scrap p.a.	₹ 10,000	₹ 15,000
Estimated cost of supervision p.a.	₹ 12,000	₹ 16,000
Estimated savings in wages p.a.	₹ 90,000	₹ 1,20,000

Depreciation will be charged on straight line basis. The Tax rate is 30%. Evaluate alternative according to –

1. Average rate of return method
2. Present value index method assuming cost of capital being 10%

Note- PV of ₹ 1 at 10% p.a. for 5 years is 3.79 and for 6 years is 4.354

- **Discounted Payback Period (DPBP) Method:**

The discounted payback period is a capital budgeting procedure used to determine the profitability of a project. A discounted payback period gives the number of years it takes to break even from undertaking the initial expenditure, by discounting future cash flows and recognizing the time value of money. Under this method the discounted cash inflows are calculated and where the discounted cash flows are equal to original investment then the period which is required is called discounting Payback period. While calculating discounting cash inflows the firm's cost of capital has been used.

The period of time that a project or investment takes for the present value of future cash flows to equal the initial cost provides an indication of when the project or investment will break even. The point after that is when cash flows will be above the initial cost.

Procedure for computation of Discounted Payback Period

Step 1: Determine the Total Cash Outflow of the project. (Initial Investment)

Step 2: Determine the Cash Inflow after Taxes (CFAT) for each year.

Step 3: Determine the present value of net cash inflow after taxes (CFAT)

= CFAT of each year x PV Factor for that year.

Step 4: Determine the cumulative present value of CFAT of every year.

Step 5:

- Find out the Discounted Payback Period as the time at which cumulative DCFAT equals Initial Investment.
- This is calculated on "time proportion basis" (usually following simple interpolation method).

The formula for the DPBP can be written as: [When cash flows are uniform]

$$DPBP = \frac{\text{Total Investment}}{\text{Discounted annual cash inflows}}$$

When the project's cash inflows are not uniform, that means vary from year to year, payback period is calculated by the process of cumulating cash inflows till the time when cumulative cash flows become equal to the original investment outlay. If necessary, we have to use interpolation technique to find out the fraction of payback period.

$$DPBP = \text{Year before the discounted pay-back period occurs} + \frac{\text{Cumulative cash flow in year before recovery}}{\text{Discounted cash flow in year after recovery}}$$

[When cash flows are not uniform]

Accept-Reject Decision:

The shorter a discounted payback period is means the sooner a project or investment will generate cash flows to cover the initial cost. A general rule to consider when using the discounted payback period is to accept projects that have a payback period that is shorter than the target timeframe. So, out of two projects, selection should be based on the period of discounting payback period (lesser payback period should be preferred.)

> The shorter the discounted payback period, the quicker the project generates cash inflows and breaks even. While comparing two mutually exclusive projects, the one with the shorter discounted payback period should be accepted.

Advantages: Following are the advantages of discounted payback period:

(i) The discounted payback period is used as part of capital budgeting to determine which projects to take on.

(ii) More accurate than the standard payback period calculation, the discounted payback period factors in the time value of money.

(iii) The discounted payback period formula shows how long it will take to recoup an investment based on observing the present value of the project's projected cash flows.

(iv) The shorter a discounted payback period is, means the sooner a project or investment will generate cash flows to cover the initial cost.

Disadvantages: Following are the disadvantages of discounted payback period:

(i) One of the disadvantages of discounted payback period analysis is that it ignores the cash flows after the payback period.

(ii) Both payback and discounted payback method do not take into account the full life of the project. The overall benefit and profitability of a project cannot be measured under these methods because any cash flows beyond the payback period is ignored.

(iii) It may become a relative measure. In some situations, the discounted payback period of the project may be longer than the maximum desired payback period of the management but other measures like accounting rate of return (ARR) and internal rate of return (IRR) etc. may favour the project.

(iv) The accuracy of the output only depends upon the accuracy of the input provided, like the accuracy of figures of cash flows, the estimation of the timing of cash flows which affects their present values, and the accuracy of the discount rate to be used etc.

QUESTION 17.

The Bablu Ltd is considering to select a machine out of two mutually exclusive machines.
The Company's cost of capital is 12%& corporate tax is 30%. Other information is as follows-

Particulars	Machine X	Machine Y
Cost of Machine	₹1,50,000	₹2,00,000
Estimated life	5 years	5 years
Annul Income (Before Tax & Depreciation)	₹6,25,000	₹8,75,000

Depreciation is on SLM basis

Calculate: 1) Discounted pay – back period
2) Net present value
3) Profitability Index

QUESTION 18. (Homework Sum)

Assume a business that is considering a given project. Below are some selected data from the discounted cash flow model created by the company's financial analysts:
A project requires an initial investment of ₹1,91,315 and is expected to generate the following net cash inflows:
Year 1 (2018): ₹95,000; Year 2 (2019): ₹80,000; Year 3 (2020): ₹60,000; Year 4 (2021): ₹55,000.
Compute discounted payback period of the project if the appropriate discount rate for this project is 12%.

Payback Period Vs. Discounted Payback Period

The payback period is the amount of time for a project to break even in cash collections in financial value of money. Alternatively, the discounted payback period reflects the amount of time necessary to break even in a project, based not only on what cash flows occur but when they occur and the prevailing rate of return in the market. The discounted payback period follows time value of money whereas payback period does not.

These two calculations, although similar, may not return the same result due to the discounting of cash flows. For example, projects with higher cash flows toward the end of a project's life will experience greater discounting due to compound interest. For this reason, the payback period may return a positive figure, while the discounted payback period returns a negative figure.

- **Modified Net Present Value (MNPV)**

One of the limitations of NPV method is that reinvestment rate in case of NPV is Cost of Capital (k). However, in case of MNPV, different reinvestment rates for the cash inflows over the life of the project may be used. Under this modified approach, terminal value of the cash inflows is calculated using such expected reinvestment rate (s). Thereafter, MNPV is determined with present value of such terminal value of the cash inflows and present value of the cash outflows using cost of capital (k) as the discounting factor.

Terminal value is the sum of the compounded value of cash inflows of different years at the end of the life of the project. If the life of the project is 'n' years, cash inflow of period 't' is CF_t and reinvestment rate is 'r', the terminal value will be $\sum(CF_t)^{n-t}$.

- **Modified Internal Rate of Returns (MIRR)**

The modified internal rate of return (MIRR) is a financial measure of an investment's attractiveness. It is used in capital budgeting to rank alternative investments of equal size. As the name implies, MIRR is a modification of the internal rate of return (IRR) and as such aims to resolve some problems with the IRR.

IRR assumes that interim positives cash flows are reinvested at the rate of returns as that of the project that generated them. This is usually an unrealistic scenario. To overcome this draw back a new technique emerges. Under MIRR the earlier cash flows are reinvested at firm's rate of return and finding out the terminal value. MIRR is the rate at which present value of terminal values equal to outflow (Investment).

The procedure for calculating MIRR is as follows:

MIRR = (Future value of positive cash flows / present value of negative cash flows) (1/n) -1.

Advantages:

(i) The standard internal rate of return calculation may overstate the potential future value of a project.

(ii) MIRR can distort the cost of reinvested growth from stage to stage in a project.

(iii) MIRR allows for adjusting the assumed rate of reinvested growth for different stages of a project.

Disadvantages:

The disadvantage of MIRR is that it asks for two additional decisions, i.e., determination of financing rate and cost of capital.

QUESTION 19.

M Ltd. for a construction company and asked you to calculate the MIRR for two mutually exclusive projects to determine which project should be selected.

Project X has a total life of 3 years with a cost of capital 12% and a financing cost 14%.

Project Y has a total life of 3 years with a cost of capital 15% and a financing cost 18%.

The expected cash flows of the projects are in the table below:

Year	Project X	Project Y
0	-1000	-800
1	-2000	-700
2	4000	3,000
3	5,000	1,500

- **Adjusted Net Present Value**

For determining NPV, weighted average cost of capital is used as the discounting factor, based on the assumption that every project is financed by the same proportions of debt and equity as found in the capital structure of the firm. However, that may not be true. Moreover, tax advantages (savings in tax) due to use of borrowed fund is not usually considered in financial appraisal of investment proposals discussed so far. But impact of debt financing can be incorporated using Adjusted Present Value Method with an adjustment of tax aspects of debt financing with the **Base Case NPV.**

Base Case NPV is the NPV under the assumption that the project is all-equity financed.

Adjusted NPV = Base case NPV + NPV of Tax Shields arising out of financing decisions associated with the project.

QUESTION 20.

A firm is considering a project requiring ₹50 lakh of investment. Expected cash flow is ₹10 lakh per annum for 8 years. The rate of return required by the equity investors from the project is 15%. The firm is able to raise ₹ 24 lakh of debt finance carrying 14% interest for the project. The debt is repayable in equal annual installments over the eight-year period – the first to be paid at the end of the first year. The tax rate is 40%. You are required to calculate adjusted NPV. Assume equity cost is 5%.

Conglomerates are companies that either partially or fully own a number of other companies. Here, conglomerate means large company. In case of investment in or by the large company environment, hurdle rate is an important criterion. Hurdle rate will guide us to make effective investment decision. A hurdle rate, which is also known as benchmark or cut-off rate or the minimum required rate of return or target rate that investors are expecting to receive on an investment. The rate is determined by assessing the cost of capital, risks involved, current opportunities in business expansion, rates of return for similar investments, and other factors that could directly affect an investment.

In other words, before accepting and implementing a certain investment project, its internal rate of return (IRR) should be equal to or greater than the hurdle rate. Any potential investments must possess a return rate that is higher than the hurdle rate in order for it to be acceptable in the long run.

As we find in practical, most companies use their Weighted Average Cost of Capital (WACC) as a hurdle rate for investments. Generally, it is utilized to analyze a potential investment, taking the risks involved and the opportunity cost of foregoing other projects into consideration. One of the main advantages of a hurdle rate is its objectivity, which prevents management from accepting a project based on non-financial factors. Some projects get more attention due to popularity, while others involve the use of new and exciting technology. Another way of looking at the hurdle rate is that it's the required rate of return investors demand from a company. Therefore, any project the company invests in must be equal to or ideally greater than its cost of capital.

In conglomerate environment, at present, the most common way to use the hurdle rate to evaluate an investment is using a discounted cash flow (DCF) technique. The DCF technique uses the concept of the time value of money (opportunity cost) to forecast all future cash flows and then discount them back to today's value to provide the net present value.

NPV Vs. IRR

In case of mutually exclusive projects, financial appraisal using NPV & IRR methods may provide conflicting results. The reasons for such conflicts may be attributed to (i) Difference in timing / pattern of cash inflows of the alternative proposals (Time Disparity), (ii) difference in their amount of investment (Size Disparity) and (iii) difference in the life of the alternative proposals (Life Disparity).

(a) Time Disparity:

Main source of conflict is the different re-investment rate assumption. Such conflicts may be resolved using modified version of NPV and IRR using expected / defined reinvestment rate applicable to the firm. For modified NPV and IRR, at first Terminal Value (TV) is calculated using the specified reinvestment rate.

$TV = \sum CF_t (1+r)^{n-t}$

$NPV^* = \{TV \div (1+k)^n\} - I$

$IRR^* = (TV \div I)^{1/n} - 1$

Where, r^* = Reinvestment rate

NPV^* & IRR^* are the modified NPV and modified IRR

QUESTION 21.

The following information is available for two projects of a company.

Particulars	Project I (₹)	Project II (₹)
Investment	2,20,000	2,20,000
Year 1	62,000	1,42,000
Year 2	80,000	80,000
Year 3	1,00,000	82,000
Year 4	1,40,000	40,000

Cost of Capital is 10%. You are requested to advise to the company.

(b) Size Disparity:

Conflict may arise due to disparity in the size of initial investment /outlays. Such conflict may be resolved using incremental approach.

Steps:

- Find out the differential cash flows between the two proposals.
- Calculate the IRR of the incremental cash flows
- If the IRR of the differential cash flows exceeds the required rate of return (usually cost of capital), the project having greater non-discounted net cash flows should be selected.

QUESTION 22.

A and B are two mutually exclusive investments involving different outlays. The details are:

Particulars	Project A (₹)	Project B (₹)
Initial Investment (₹)	50,00,000	75,00,000
Net Cash Inflow (₹)	62,50,000	91,50,000
IRR (%)	25	22
NPV (₹)	6,81,250	8,17,350

Cost of capital (k) = 10%. Which method will be accepted?

(c) Life Disparity or Unequal Lives of the Projects:

In some cases, the mutually exclusive alternatives with different/ unequal lives may lead to conflict in ranking. To resolve such conflict, one approach is to compare the alternatives on the basis of their Equivalent Annual Benefit (EAB) or Equivalent Annual Cost (EAC) and select the alternative with the higher EAB or lower EAC.

EAB = NPV × Capital Recovery Factor

or NPV ÷ $PVIFA_{k,n}$

Capital Recovery Factor = The inverse of $PVIFA_{k,n} = k(1+k)^n \div (1+k)^n - 1$

EAC = PV of Cost ÷ $PVIFA_{k,n}$

Another approach is to evaluate the alternatives over an equal time frame using the lowest common multiple (LCM) of the lives of the alternatives under consideration. This method is referred to as LCM method. For example, life of Proposal A is 3 Years and that of B is 5 years. Lowest common multiple period is 15 years, during which period, it may be assumed that Machine A will be replaced 5 times and Machine B will be replaced 3 times. Cash Flows are extended to this period and computations made. The final results would then be on equal platform i.e., equal years, and hence would be comparable.

QUESTION 23.

The following information is obtained from the two projects:

Particulars	P (₹)	Q (₹)
Initial Investment	10,00,000	20,00,000
Cash Inflows		
Year 1	8,00,000	8,00,000
Year 2	7,00,000	9,00,000
Year 3	Nil	7,00,000
Year	Nil	6,00,000
Service Life	2 Years	4 Years
Required rate of return: 10%		

Which project should be preferred?

- **Capital Rationing**

There may be situations where a firm has a number of independent projects that yield a positive NPV or having IRR more than it's cut off rate, PI more than 1, i.e., the projects are financially viable, hence, acceptable. However, the most important resource in investment decisions, i.e., funds, are not sufficient enough to undertake all the projects. In such a case, the projects are selected in such a way so that NPV becomes maximum in order to maximize wealth of shareholders. Investment planning in such situation is Capital Rationing.

There are two possible situations of Capital Rationing

(i) Generally, firms fix up maximum amount that can be invested in capital projects, during a given period of time, say a year. This budget ceiling imposed internally is called as Soft Capital Rationing or Internal Capital Rationing.

(ii) There may be a market constraint on the amount of funds available for investment during a period. This inability to obtain funds from the market, due to external factors is called Hard Capital Rationing or External Capital Rationing.

Different proposals may be classified into **two categories**: Divisible and Indivisible

In case of divisible projects, part acceptance of the project is possible. Indivisible projects are either to be accepted in its entirety or to be rejected, i.e., part acceptance is not possible. For divisible projects, PI approach help in selecting the proposals providing the **highest NPV**. For indivisible projects, through trial-and-error methods, best combination of the projects with the **highest NPV** may be ascertained.

For Divisible Projects

Rank the projects following PI and arrange them in descending order. Go on selecting the projects till the fund is available.

For Indivisible Projects

Determine all the feasible combinations of the projects and rank them according to total NPV of the combinations. Select the combination with the highest NPV.

QUESTION 24.

X Ltd. has a capital budget of ₹1.5 crore for the year. From the following information relating to six independent proposals, select the projects if (i) the projects are divisible and (ii) the projects are indivisible.

Proposal	Investments (₹)	NPV (₹)
A	70,00,000	30,00,000
B	25,00,000	16,00,000
C	50,00,000	20,00,000
D	20,00,000	10,00,000
E	55,00,000	45,00,000
F	75,00,000	-25,00,000

QUESTION 25. (Homework sums)

A limited company is considering investing a project requiring a capital outlay of ₹ 2,00,000.

Forecast for annual income after depreciation but before tax is as follows:

Year	(₹)
1	1,00,000
2	1,00,000
3	80,000
4	80,000
5	40,000

Depreciation may be taken as 20% on original cost and taxation at 50% of net income.

You are required to evaluate the project according to each of the following methods:

(a) Payback period method

(b) Rate of return on original investment method

(c) Rate of return on average investment method

(d) Discounted cash flow method taking cost of capital as 10%

(e) Net present value index method

(f) Internal rate of return method.

(g) Modified internal rate of return method.

QUESTION 26.

A company has just installed a machine Model A for the manufacture of a new product at capital cost ₹1,00,000. The annual operating costs are estimated at ₹50,000 (excluding depreciation) and these costs are estimated on the basis of an annual volume of 1,00,000 units of production. The fixed costs this volume of 1,00,000 units of output will amount to ₹ 4,00,000 p.a. The selling price is ₹ 5 per unit of output. The machine has a five-year life with no residual value.

The company has now come across another machine called Super Model which is capable of giving, the same volume of production at an estimated annual operating cost of ₹30,000 exclusives of depreciation. The fixed costs will however, remain the same in value. This machine also will have a five-year life with no residual value. The capital cost of this machine is ₹ 1,50,000.

The company has an offer for the sale of the machine Model A (which has just been installed) at ₹ 50,000 and the cost of removal thereof will amount to ₹10,000. Ignore tax.

In view of the lower operating cost, the company is desirous of dismantling of the machine Model A and installing the Super Model Machine. Assume that Model A has not yet started commercial production and that the time lag in the removal thereof and the installation of the Super Model machine is not material.

The cost of capital is 14% and the P.V. Factors for each of the five years respectively are 0.877, 0.769, 0.675, 0.592 and 0.519.

State whether the company should replace Model A machine by installing the Super Model machine. Will there be any change in your decision if the Model A machine has not been installed and the company is in the process of consideration of selection of either of the two models of the machine? Present suitable statement to illustrate your answer.

QUESTION 27.

A chemical company is considering replacing an existing machine with one costing ₹ 65,000. The Existing machine was originally purchased two years ago for ₹ 28,000 and is being depreciated by the straight-line method over its seven-year life period. It can currently be sold for ₹ 30,000 with no removal costs. The new machine would cost ₹ 10,000 to install and would be depreciate over five years. The management believes that the new machine would have a salvage value of ₹ 5,000 at the end of year 5. The management also estimates an increase in net working capital requirement of ₹ 10,000 as a result of expanded operations with the new machine. The firm is taxed at a rate of 55% on normal income and 30% on capital gains. The company's expected after-tax profits for next 5 years with existing machine and with new machine are given as follows:

Year	With existing machine	With new machine
1	2,00,000	2,16,000
2	1,50,000	1,50,000
3	1,80,000	2,00,000
4	2,10,000	2,40,000
5	2,20,000	2,30,000

(a) Calculate the net investment required by the new machine.
(b) If the company's cost of capital is 15%, determine whether the new machine should be purchased.

QUESTION 28. (Homework Sum)

A project costing ₹ 5,60,000 is expected to produce annual net cash benefits (CFAT) of ₹ 80,000 over a period of 15 year. Estimate the internal rate of return (IRR). Also, find the payback period and obtain the IRR from it. How do you compare this IRR with the one directly estimated?

QUESTION 29. (Homework Sum)

A plastic manufacturer has under consideration the proposal of production of high-quality plastic glasses. The necessary equipment to manufacture the glasses would cost ₹.1 lakh and would last 5 year The tax relevant rate of depreciation is 20% on written down value. There is no other asset in this block. The expected salvage value is ₹ 10,000. The glasses can be sold at ₹4 each. Regardless of the level of production, the manufacturer will incur cash cost of ₹ 25,000 each year if the project is undertaken. The overhead costs allocated to this new line would be ₹ 5,000. The variable costs are estimated at ₹ 2 per glass. The manufacturer estimates it will sell about 75,000 glasses per year; the tax rate is 35%. Should the proposed equipment be purchased? Assume 20% cost of capital and additional working requirement, ₹ 50,000.

QUESTION 30. (Homework Sum)

Modern Enterprises Ltd. is considering the purchase of a new computer system for its research and development division, which would cost ₹35 lakh. The operation and maintenance costs (excluding depreciation) are expected to be ₹ 7 lakh per annum. It is estimated that the useful life of the system would be 6 years, at the end of which the disposal value is expected to be ₹ 1 lakh.
The tangible benefits expected from the system in the form of reduction in design and drafts manship costs would be ₹ 12 lakh per annum. The disposal of used drawing office equipment and furniture initially is anticipated to net ₹ 9 lakh.
As capital expenditure in research and development, the proposal would attract a 100% write-off for tax purposes.
The gains arising from disposal of used assets may be considered tax free. The effective tax rate is 35%. The average cost of capital of the company is 12%.
After appropriate analysis of cash flows, advise the company of the financial viability of the proposal. Ignore tax on salvage value.

QUESTION 31. (Homework Sum)

A textile company is considering two mutually exclusive investment proposals. Their expected cashflow streams (CFAT) are given as follows:

Year	Proposal X (₹ in thousand)	Proposal Y (₹ in thousand)
0	(500)	(700)
1	145	100
2	145	110
3	145	130
4	145	150
5	145	160
6	145	150
7		120
8		120
9		110
10		100

The company employs the risk-adjusted method of evaluating risky projects and selects the appropria required rate of return as follows:

Project payback	Required rate of return (percentage)
Less than 1 year	8
1 to 5 years	10
5 to 10 years	12
Over 10 years	15

Which proposal should be acceptable to the company?

QUESTION 32.

Cooker company is evaluating three investment situation:

1. Produce a new line of Aluminum skillets
2. Expand its existing cooker line to include several new sizes
3. Develop a new, higher quality line of cooker

Project	Investment required	PV of Future cash flows
1	₹ 2,00,000	₹ 2,90,000
2	₹ 1,15,000	₹ 1,85,000
3	₹2,70,000	₹ 4,00,000

If project 1 & 2 are jointly undertaken, there will be no economies. The Investment required and Present Values will simply be the Sum of the parts. With Projects 1 & 3, economics are possible in investment, because one of Machines acquired can be used in both production processes.

The total investment required for Project 1 & 3 combined is ₹ 4,40,000. If Project 2 & 3 is are undertaken, there are economics to be achieved in marketing & producing the products, but not in Investment.

The expected Present Value of Future Cash Flows for projects 2 & 3 is ₹ 6,20,000. If all three Projects are undertaken simultaneously, the economics noted will still hold. However, a ₹ 1,25,000 extension on the plant will be Space is not available for all three projects. Which Project(s) should be chosen?

QUESTION 33.

Lala Ltd is considering the purchase of a new Computer System for its R & D division, which would cost 35 Lakhs. The Operation and Maintenance Costs (excluding Depreciation) are 7 Lakhs per annum.

It is estimated that the useful life of the system would be 6 years at the end of which the Scrap Value will be 1 Lakh. The tangible benefits expected from the system in the form of reduction in design and draughts man ship costs would be 12 Lakhs per annum. Besides, the disposal of used Drawing Office Equipment and Furniture initially is expected to net 9 Lakhs.

QUESTION 34.

Munni Ltd has just installed machine R at a cost 2 lakhs. The machine has a 5 yearlife with No Residual value. The annual volume of production is estimated at 1,50,000units, which can be Sold at 6 per unit. Annual operating costs are estimated at 2 Lakhs (excluding depreciation) at his output level. Fixed costs are estimated R3 per unit for the same level of production.

The company has just come across another model Machine S, capable of giving the same output at an annual operating cost of 1.80 lakhs (excluding depreciation). There will be no change in fixed costs. Machine S costs 2.50 Lakhs, its residual value will be nil after a useful life of 5 years Munni Ltd has an offer for sale of Machine R for 1,00,000. The cost of dismantling and Removal will be 30,000. As the Company has not yet commenced operations, it wants to dispose Off Machine R and install Machine S.

The company will be a zero-tax Company for 7 years in View of Incentives and Allowances available. Cost of Capital is 14 %.

Advise Whether the Company should opt for replacement. Will your answer be different if the Company has not installed Machine R and is in the process of selecting either R or S ?

CMA STUDENTS AND TEAM AAC CELEBRATING SUCCESS OF CMA INTER CLEARED STUDENT

THAT IS WHY STUDENTS SAYS

AAC=CMA

.....NEXT CAN BE YOU.

CHAPTER 3 -CASH FLOW STATEMENT

1.0 MEANING OF CASH FLOW STATEMENT

The Cash Flow Statement means the Statement of Changes in Cash and Cash equivalents during a particular accounting period. It shows

1. Net Cash flows from Operating Activities;
2. Net Cash flows from Investing Activities;
3. Net Cash flows from Financing Activities
4. Net Change in Cash and Cash Equivalents.

Notes:

1. Cash Flow Statement is not a substitute for Income Statement because it does not disclose the calculation of Profit or Loss.

2 Cash Flow Statement is not a substitute for Position Statement (Balance Sheet) because it does not disclose the Total Financial Position [i.e. Total Equity, Non-Current Liabilities, Current Liabilities, Non-Current Assets and Current Assets].

3.Cash Flow Statement is historical in nature because it is prepared on the basis of Historical Financial Statements.

2.0 OBJECTIVES OF CASH FLOW STATEMENT

The objectives of Cash Flow Statement are as Follows:

1. To ascertain Net Cash Flows from Operating, Investing and Financing Activities of an enterprise

2. To ascertain the Net Change in Cash & Cash Equivalents indicating the aggregate of Net Cash Flows from Operating, Investing and Financing Activities of an enterprise between the dates of two consecutive Balance Sheets.

3.0 USES/ADVANTAGES OF CASH FLOW STATEMENT

The various uses of Cash Flow Statement are as follows:

1. Facilitates to ascertain Net Cash flows: Cash Flow Statement facilitates to ascertain Net Cash Flows from Operating, Investing and Financing Activities and Net Change in Cash and Cash Equivalents.

2. Facilitates to evaluate Cash Financial Performance: It facilitates to evaluate Cash Financial Performance by providing information on Net Cash flows from Operating Activities.

3. Facilitates to evaluate Cash Financial Position: It facilitates to evaluate Cash Financial Position by providing information on Net Cash flows from investing Activities and Financing Activities.

4. Facilitates Efficient Cash Management.: The management can know the situation of shortage or surplus cash and can plan for the effective use of surplus cash or can make the necessary arrangement in case of an shortage of cash.

5. Facilitates Comparison: It facilitates the comparative study of the operating performance of different enterprises because it eliminates the effects of using different accounting treatments for the same transactions and events.

6. Facilitates Capital Budgeting Decisions: It facilitates Capital Budgeting Decisions by providing information on Net Cash flows from Investing Activities.

7. Facilitates Capital Structure Decisions: It facilitates Capital Structure Decisions by providing information on Net Cash flows from Financing Activities.

8. Facilitates Panning: The Projected Cash Flow Statement enables the management to plan its future investments, operating and financial activities such as the repayment of long-terms loans and interest thereon, modernisation or expansion of plant, payment of cash dividend etc.

9. Answers to some of the important financial questions: As a tool of historical analysis, it provides an answer to some of the important financial questions such as:

(i) How was it possible to distribute dividend in excess of current earnings or in the presence of a net loss for the period?

(ii) Why has the cash decreased although the net income for the period has gone up?

(iii) Why has the cash increased even though there has been a net loss for the period?

(iv) What happened to the proceeds of the sale of land and equipments ?

(v) Why did the firm resort to long-term borrowings inspite of large profits?

(vi) Why did the firm issue new equity or preference shares?

(vii) How was the retirement of long-term debts or redemption of redeemable preference shares accomplished?

4.0 LIMITATIONS OF CASH FLOW STATEMENT

The major limitations of Cash Flow Statement are as follows

1. Ignores Non-cash transactions	It ignores the non-cash transactions. In other words, it does not take into consideration those transactions which do not affect the cash for Example, Issue of Shares against the purchase of Fixed Assets or Stock-in-trade, Conversion of Debentures into Shares
2. Secondary Data Based Statement	It is a secondary data based statement. It merely rearranges the primary data already appearing in other statements viz., Income Statement and Balance Sheet
3. Historical Statement	it is basically historical in nature because it is prepared on the basis of Historical Financial Statements.
4 Ignores Accrual Concept	It ignores the Fundamental Assumption of Accrual.

5.0 WHAT IS MEANT BY THE TERM 'CASH FLOWS'?

MEANING OF CASH FLOWS

Cash Flows are inflows and outflows of Cash and Cash equivalents.

MEANING OF CASH INFLOWS

Cash Inflow arises when the net effect of transaction is increase in the amount of Cash or Cash Equivalents.

MEANING OF CASH OUT FLOWS

Cash Out flow arises when the net effect of transaction is to decrease in the amount of Cash or Cash Equivalents.

EXAMPLES OF CASH FLOWS

Cash Inflows	Cash Outflows
1. Cash Sales of Goods	1. Cash Purchases of Goods
2. Cash received from Trade Debtors	2. Cash paid to Trade Creditors
3. Cash received from commission & Royalty	3. Operating Expenses paid (e.g. Salaries& Wages, Administration Exp. Selling Exp.)
4. Sale of Fixed Assets for Cash	4. Income Tax paid
5. Sale of Investments (whether Current or Non-Current) for Cash	5. Cash Purchase of Fixed Assets
6. Loans & Advances repayment received (whether Short term or Long term)	6. Cash Purchase of Investments (whether Short term or Long term)
7. Income received on Investments (whether Current or Non-Current)	7. Loans & Advances granted (whether Short term or Long term)
8. Issue of Equity Shares for Cash	8. Buy-back of Equity Shares for Cash
9. Issue of Preference Shares for Cash	9. Redemption of Preference Shares for Cash
10. Issue of Debentures for Cash	10. Redemption of Debentures for Cash
11. loans taken (whether Short term or Long term)	11. Loans repaid (whether Short term or Long term
	12. Interest on Debentures & Loans paid (whether Short term or Long term)
	13. Final Dividend on Equity Shares paid.
	14. Dividend on Preference Shares paid.
	15. Interim Dividend on Equity Shares paid.

6.0 CASH AND CASH EQUIVALENTS

THE TERM 'CASH

Meaning	Cash comprises Cash on hand and Demand Deposits with banks.
Examples	Cash in hand, Cash at Bank

THE TERM CASH EQUIVALENTS

Meaning	Cash Equivalents are short term, highly liquid investments that are readily convertible into known amounts of cash and which are subject to an insignificant risk of changes in value.
Purpose	Cash Equivalents are held for the purpose of meeting short-term cash commitments rather than for Investment or other purposes

Two Conditions for an Investment to qualify as a Cash Equivalent	1. It must be readily convertible to a known amount of cash. 2. It must be subject to an insignificant risk of changes in value. Therefore, an investment normally qualifies as a cash equivalent only when it has a short maturity of, say, 3 months or less from the date of acquisition.
Examples	Treasury Bills, Commercial Papers, Commercial Bills, Call Money, Certificate of Deposit

7.0 TRANSACTIONS NOT CONSIDERED AS CASH FLOWS

Meaning	Transactions which represent movements between items of Cash or Cash Equivalents are not considered as Cash Flows.
Reason	These components are part of the cash management of an enterprise rather than part of its Operating, Investing and Financing Activities.
Examples	1. Cash deposited into Bank; 2. Cash withdrawn from Bank; 3. Purchase/Sale of Short-term Marketable Securities (neither held as Current Investments nor held as Non-current Investments).

8.0 NON-CASH TRANSACTIONS

Meaning	Non-Cash transactions are those transactions which do not involve Cash.
Examples Verification by Journal Entry]	1. Issue of Equity Shares or Debentures against the purchase of an Asset JOURNAL ENTRY Asset A/c Dr To Equity Share Capital A/c/Debentures A/c 2. Issue of Equity Shares on conversion of Convertible Debentures JOURNAL ENTRY Convertible Debentures A/c Dr To Equity Share Capital A/c 3. Charging of Depreciation on a Fixed Tangible Asset JOURNAL ENTRY Depreciation A/c Dr To Fixed Tangible Asset A/c 4. Amortization of a Fixed Intangible Asset JOURNAL ENTRY Profit &Loss A/c Dr To Intangible Asset A/c 5. Written off of an old Fixed Tangible Asset JOURNAL ENTRY Profit &Loss A/c Dr To Fixed Tangible Asset A/c 6. Declaration of Final Dividend on Shares JOURNAL ENTRY: Proposed Dividend A/c Dr To Dividend Payable A/c
Why ignored in CFS?	Non-Cash transactions are ignored while preparing Cash Flow Statement because these do not involve Cash.

9.0 OPERATING ACTIVITIES

MEANING OF OPERATING ACTIVITIES

Operating Activities are the principal revenue-producing activities of the enterprise and other activities that are not investing or financing activities.

EXAMPLES OF CASH FLOWS FROM OPERATING ACTIVITIES

Cash Inflows	Cash Outflows
1. Cash Sales of Goods	1. Cash Purchases of Goods
2. Cash received from Trade Debtors	2. Cash paid to Trade Creditors
3. Cash received from Trading Commission & Royalty	3. Operating Expenses paid (e.g. Salaries & Wages, Administration Exp. Selling Exp.) 4. income Tax (related to Operating Activities only) paid.

TUTORIAL NOTE

In case of Financial Enterprises the following activities are classified as Operating Activities since they relate to the main revenue-producing activity of that enterprise

1. purchases and Sales of Shares & Debentures of other companies for Cash

2. Dividend received on Shares of other companies

3. interest received on Debentures of other companies

4. loans & Advances granted

5. Interest received on Loans & Advances granted

DISTINCTION BETWEEN NET PROFIT AND CASH FROM OPERATING ACTIVITIES

Basis of Distinction	Net Profit	Cash from Operating Activities
1. Meaning	It indicates the net result of Operating & non-operating activities carried out during an accounting year.	It indicates the Cash Flow as a result of operating activities.
2. Non-Cash Operating Item (Depreciation)	It is calculated after taking into account the effect of non-cash operating items.	It is calculated excluding the effect of non-cash operating items since these items merely represent the book entries.
3. Non-Operating items	It is calculated after taking into account the effect of non operating items.	It is calculated excluding the effect of non-operating items since these items do not relate to operating activities.

10.0 INVESTING ACTIVITIES

MEANING OF INVESTING ACTIVITIES

Investing Activities are the acquisition and disposal of Long-term Assets and other Investments not included in Cash Equivalents.

EXAMPLES OF INVESTING ACTIVITIES

Cash Inflows	Cash Outflows
1. Cash Sale of Fixed Assets	1. Cash Purchase of Fixed Assets
2. Cash Sale of Investments (whether Current or Non-Current)	2. Cash Purchase of Investments (whether Short term or Long term)
3. Loans& Advances repayment received (whether Short term or Long term)	3. Loans & Advances granted (whether Short term or Long term)
4. Income received on Investments (whether Current or Non-Current)	4. Brokerage paid on Purchase of Investments (whether Short term or Long term)

11.0 FINANCING ACTIVITIES

MEANING OF FINANCING ACTIVITIES

Financing Activities are activities that result in changes in the size and composition of the Owners Capital (including Preference Share Capital in the case of a company) and Borrowings (whether Short term or Long term) of the enterprise.

EXAMPLES OF FINANCING ACTIVITIES

Cash Inflows	Cash Outflows
1. Issue of Equity Shares for Cash	1. Buy-back of Equity Shares for Cash.
2. Issue of Preference Shares for Cash	2. Redemption of Preference Shares for Cash
3. Issue of Debentures for Cash	3. Redemption of Debentures for Cash
4. Loans taken (whether for short-term or long-term)	4. Loans repaid (whether Short term or Long term)
5. Interest received on Calls-in-arrears. (whether Short term or Long term).	5. Interest on Debentures& Loans paid
	6. final dividend on equity shares paid
	7. Dividend on Preference Shares paid
	8. Interim Dividend on Equity Shares paid
	9. Brokerage & Underwriting commission paid on Issue of Shares& Debentures

ILLUSTRATION 1

Classify the following activities as (i) Operating Activities; (ii) Investing Activities; (ii) Financing Activities;

(i) purchase of Machinery
(ii) Sale of Land
(iii) Payment of Income Tax
(iv) Refund of Income Tax
(v)Payment of Dividend
(vi) Receipt of Dividend
(vii) Payment of Interest on Debenture
(viii) Receipt of Interest on Debenture
(ix) Issue of Debentures
(x) Buy-back of Equity Shares

SOLUTION

(i) Investing Activity.
(ii) Investing Activity
(iii) Operating Activity,
(iv) Operating Activity
(v) Financing Activity,
(vi) Investing Activity
(vii) Financing Activity,
(viii) Investing Activity
(ix) Financial Activity,
(x) Financing Activity

ILLUSTRATION 2

Classify the following activities as (a) Operating Activities (b) Investing Activities, (c) Financing Activities, (d) Cash or Cash Equivalents.

1.Purchase of Machinery	21. Dividend received on Shares
2 Issue of Equity Share Capital	22. Rent received on property
3 Cash Sales	23. Selling & Distribution Exp paid
4. Interest on Short-term Borrowings	24. Income Tax paid
5.Sale of Machinery	25. Dividend paid on Pref. Shares
6 Cash receipts from Debtors	26. Underwriting Commission paid
7. Commission and Royalty received	27. Rent paid
8 Purchase of Current Investments	28. Brokerage paid on issue of shares
9 Redemption of Preference shares	29. Brokerage paid on purchase of Investments
10. Cash Purchases of Goods	30. Bank Overdraft
11. Sale of Investments	31. Cash Credit
12. Purchase of Goodwill	32. Short-term Deposits having maturity of 3 months
13. Cash paid to suppliers of Goods	33. Marketable Securities having maturity of 3 months
14. Interim Dividend paid on Equity Shares	34. Refund of Income Tax received
15. Wages & Salaries paid	35. Discount allowed to customers
16. Sale of Patents	36. Discount received from Suppliers Investments
17. Interest received on Debentures held as	37. Purchase of Marketable Securities having maturity of 6 months
18. Interest paid on borrowings	
19. Office & Adm. Expenses paid	
20. Manufacturing Overheads paid	

SOLUTION

CLASSIFICATION OF ACTIVITIESS

a) Operating Activities	3, 6,7, 10, 13, 15, 19, 20, 23, 24, 27, 34, 35, 36
(b) Investing Activities	1,5, 8, 11, 12, 16, 17, 21, 22, 29, 37
(c) Financing Activities	2, 4, 9, 14, 18, 25, 26, 28, 30, 31
(d) Cash or Cash Equivalents	32, 33

ILLUSTRATION 3

Classify the following activities as (i) Operating Activities; (ii) investing Activities; (iii) Financing Activities in case of (a) a Manufacturing Enterprise; (b) a Financial Enterprise.

1. Purchase of Investments.
2. Proceeds from Sale of Investments.
3 Brokerage paid on purchase & sale of Investments.
4. Interest received on Debentures held as Investments.
5. Dividend received on shares held as Investments.
6. Loans & Advances made to third parties.
7. Receipts from the repayments of loans & advances made to third parties.
8. Receipt of Interest on loans & advances made to third parties.

SOLUTION
(a) In case of a Manufacturing Enterprise, all the given activities are Investing Activities since they relate to acquisition and disposal of long-term assets.
(b) In case of a Financial Enterprise, all the given activities are Operating Activities since they relate to the main revenue-producing activity of the enterprise.

ILLUSTRATION 4
Classify the following activities as (i) Operating Activities; (Ii) Investing Activities; (Iii) Financing Activities in case of (a) Manufacturing Enterprise, (b) a Real Estate Enterprise.
1. Purchase of Land.
2. Purchase of Building.
3. Sale of Land.
4. Sale of Building.
5. Brokerage paid on purchase and sale of Land & Building.
6. Rent received from a Building.
7. Payment of Construction Cost of a Building.

SOLUTION

(a) In case of a Manufacturing Enterprise, all the given activities are Investing Activities since they relate to acquisition and disposal of long-term assets.

(B) In case of a Real Estate Enterprise, all the given activities are Operating Activities since they relate to the main revenue-producing activity of the enterprise

ILLUSTRATION 5
When is Dividend received considered as Operating Activity?

SOLUTION
Dividend received by a Financial Enterprise is considered as Operating Activity.

ILLUSTRATION 6
Classify the following into Operating, Investing and Financing Activities:
(a) Refund of Income Tax
(b) Sale of Shares & Debentures of other companies by a Finance Co
(c)Dividend on Shares and Interest on Debentures paid by a Mutual Fund Company
(d) Dividend on Shares and Interest on Debentures received by a Bank.
(e) Payment of Brokerage on Purchase of Shares of a Finance Company.
SOLUTION
(a) Operating Activity (b) Operating Activity (c) Financing Activity
(e) Investing Activity (d) Investing Activity

ILLUSTRATION 7

If you want neither Inflow nor Outflow of Cash, which of the following transactions will you select?

(a) A Long-term Loan from Bank

(b) Goodwill written off

(c) Issue of Equity Shares or Debentures against the purchase of a Fixed Asset

(d) Issue of Equity shares on conversion of Debentures

(e) Cash deposited into Bank

(f) Cash withdrawn from Bank

(g) Charging Depreciation on Furniture

(h) Declaration of Final Dividend

(i) Purchase of Stock-in-trade on credit

SOLUTION

(b) to (i)

ILLUSTRATION 8

Mention the net amount of Source' or 'Use' of Cash in the following cases:

1. When Fixed asset (having book value of 15,000) is sold at a loss of 5,000.
2. When Goods costing 10,000 are sold for 15,000.
3. When Discount of 1,000 is received on making payment to a creditor of 10,000.
4. When Issue of shares for 7,00,000 against purchase of business comprising of fixed assets 6,00,000; current assets 2,00,000 and took over current liabilities 1,00,000.
5. When Old Furniture (Book value 1,000) written off
6. When Deferred Revenue Expenditure (1,000) charged to Profit.

SOLUTION

1. Source 10,000,
2. Source 15,000,
3. Use 9,000,
4. Nil because this transaction does not involve Cash.
5. Nil because this transaction does not involve Cash.
6. Nil because this transaction does not involve Cash.

12.0 HOW TO COMPUTE CASH FROM OPERATING ACTIVITIES

The amount of cash from operating activities may be computed by following either the Direct Method or the Indirect Method.

HOW TO COMPUTE NET CASH FLOW FROM OPERATING ACTIVITIES

(UNDER DIRECT METHOD)

Particulars		Rs.
A. Operating Receipts in Cash (e.g.)		
Cash Sales	XXX	
Cash receipts from Debtors	XXX	
Trading Commission received	XXX	XXX
B. Operating Payments in Cash (e.g.)		
Cash Purchases	XXX	
Cash paid to Suppliers	XXX	
Wages &Salaries paid	XXX	
Office and Administration Expenses paid	XXX	

Manufacturing Overheads paid	xxx	
Selling and Distribution Expenses paid	xxx	xxx
C Cash generated from Operations before taxes (A B)		xxx
D Income Tax paid (Net of Refund of Tax)		xxx
E Cash flow before extraordinary item (C D)		xxx
F Extraordinary item		xxx
G Net Cash from (used in) Operating Activities		xxx

ILLUSTRATION 9

From the following particulars, Calculate Cash Flows from Operating Activities

Particulars	Rs.	Particulars	Rs.
Cash Sales	2,00,000	Manufacturing Overheads paid	30,000
Cash Purchases	50,000	Office & Administration Exp. paid	20,000
Cash receipts from customers	4,00,000	Selling &Distribution Expenses paid	10.000
Cash paid to suppliers	1,00,000	Income Taxes paid	1,18,000
Trading Commission received	1,00,000	Insurance proceeds from earthquake disaster settlement	1,00,000
Trading Commission Paid	25,000	Income Tax Refund received	3,000
Wages &Salaries paid	40,000		
Rent paid	10,000		

SOLUTION

CASH FLOW FROM OPERATING ACTIVITIES

Particulars	RS.
A. Operating Receipts in Cash:	
Cash Sales	2,00,000
Cash receipts from customers	4,00,000
Trading Commission received	1,00,000
	7,00.000
B. Operating Payments in Cash:	
Cash Purchases	50,000
Cash paid to supplier	1,00,000
Trading Commission paid	25,000
Wages& Salaries paid	40,000
Rent paid	10,000
Manufacturing Overheads paid	30,000
Office & Administrative Expenses paid	20,000
Selling &Distribution Expenses paid	10,000
	2,85,000
C. Cash generated from Operations before taxes [A- B]	4,15,000
D. Income Tax paid (Net of refund) [1,18,000- ₹ 3,000]	(1,15,000)
E. Cash flow before extraordinary items	3,00,000
F Insurance proceeds from earthquake disaster settlement	1,00,000
G Net Cash from Operating Activities	4,00,000

HOW TO COMPUTE NET CASH FLOW FROM OPERATING ACTIVITIES

(UNDER INDIRECT METHOD)

Particulars		RS.
Step 1: Calculate Net Profit before Taxation and Extraordinary Item as follows:		
A. Closing Balance of P & LA/c		XXX
Less: Opening Balance of P&L A/c [or Add: Opening Bal. of P & L A/c (Dr.)]		XXX
Add: Proposed Dividend for the current year		XXX
Add: Interim Dividend paid during the current year		XXX
Add: Transfer to Reserve [or Less: Transfer from Reserve]		XXX
Add: Provision for Tax made during the Current Year		XXX
Less: Refund of Tax credited to P&L A/c		(XXX)
Less: Extraordinary item, if any, credited to P&L A/c (e.g., Insurance proceeds from earthquake disaster settlement)		(XXX)
Add: Extraordinary Debit items (e.g., Loss due to earthquake)		XXX
B Net Profit before Taxation and Extraordinary Item		XXX
Step 2: Calculate Operating Profit before Working Capital Changes as follows:		
A Net Profit before Taxation and Extraordinary Item		XXX
B Adjustments for Non-Cash and Non-Operating Items: (For Example)		
Depreciation	XXX	
Interest on Debentures & Loans (whether Short term or Long term)	XXX	
Preliminary Expenses/Underwriting Commission/Discount on	XXX	
Issue of Debentures/Shares written off	XXX	
Goodwill/Patents/Trade Marks/Copyright amortised	XXX	
Loss on Sale of Investments (whether Current or Non-Current).	XXX	
Premium payable on redemption of Preference shares/Debentures	XXX	
Interest Income from Investments (whether Current or Non-Current)	(XXX)	
Dividend Income	(XXX)	
Rental Income	(XXX)	
Profit on Sale of Investments (whether Current or Non-Current)	(XXX)	XXX
C Operating Profit before Working Capital Changes		XXX
Step 3: Calculate Cash from Operations before Tax & Extraordinary Item as follows:		
A Operating Profit before Working Capital Changes		XXX
B Add: Changes in Current Assets (Excluding Cash and Cash Equivalents) &		
Current Liabilities (Excluding Bank Overdraft & Cash Credit):		
Decrease in Inventories, Trade Receivables etc.	XXX	
Increase in Trade Payables, O/s Exp. Etc	XXX	
Increase in Inventories, Trade Receivables etc.	(XXX)	
Decrease in Trade Payables, O/s Exp. etc.	(XXX)	XXX
Cash generated from Operations		XXX
Step 4: Calculate Cash generated from Operations after Tax but before Extraordinary Item as follows:		
A. Cash generated from Operations		XXX
B Less: Income taxes paid (Including Advance Tax but Excluding Refund of Tax)		(XXX)
(Note: Income Tax should be related to Operating Activities only		
C Cash Flow before Extraordinary Item		XXX

Slep 5: Calculate Net Cash from (used in) Operating activities as follows:	
A Pash Flow before Extraordinary items	XXX
B Add: Extraordinary Credit Items (e.g., Insurance proceeds from earthquake disaster settlement, Govt. Grant)	(XXX)
D Net Cash Flow from (used in) Operating Activities	XXX

NOTE-: Negative items which are to be deducted have been shown in brackets.

ILLUSTRATION 10

From the following information, calculate Net Profit before Taxation and Extraordinary Item:

Particular	Closing Rs.	Opening Rs
Profit & Loss Account	3,36,000	1,00,000
Reserve	1,50,000	50,000
Proposed Dividend	72,000	60,000

Interim Dividend paid during the year	90,000
Provision for Tax made during the current year	1,50,000
Refund of Tax	3,000
Loss due to Earthquake	2,00,000
Insurance Proceeds from earthquake disaster settlement	1,00,000

SOLUTION

CALCULATION OF NET PROFIT BEFORE TAXATION AND EXTRAORDINARY ITEM

Particulars	Rs
A. Net Profit as per Profit & Loss A/c [3,36,000- 1,00,000]	2,36,000
Add: Proposed Dividend for the current year	72,000
Add: Interim Dividend paid during the year	90,000
Add: Transfer to Reserve	1,00,000
Add: Provision for Tax made during the Current Year	1,50,000
Less: Refund of Tax	3,000
Add: Extraordinary Item (Loss due to Earthquake)	2,00,000
Less: Extraordinary items (i.e., Insurance proceeds from earthquake disaster settlement	1,00,000
B B. Net Profit before Taxation and Extraordinary Item	7,45,000

ILLUSTRATION 11

From the following particulars, calculate the Net Cash Flow from Operating Activities:

(i) Profit made during the year was 1,00,000 after considering the following items

Particulars	Rs
(a) Depreciation on fixed assets	4,000
(6) Amortization of goodwill	2,000
(c) Transfer to Reserve	2,800
(d) Profit on Sale of Land	1,700
(e) Loss on Sale of Furniture	500
(f) Provision for Taxation	80,000

(Ii) The following is the position of Current Assets and Current Liabilities

Particular	Closing Rs.	Opening Rs
Trade Receivables	6,000	4,800
Trade Payables	4,000	6,000
Inventories	3,200	4,000
Outstanding Expenses	2,400	1,600
Provision for Taxation	80,000	70,000

SOLUTION 11:

CALCULATION OF NET CASH FLOW FROM OPERATING ACTIVITIES

Particulars		Rs
Net Profit before Tax		1,82,800
adjustments or Non-Cash and Non-Operating Items:		
Depreciation	4,000	
Goodwill amortized	2,000	
Loss on sale of Furniture	500	
Profit on sale of Land	(1,700)	4,800
Operating Profit before Working Capital Changes		1,87,600
Changes in Current Assets & Current Liabilities:		
Decrease in Inventories	800	
Increase in Outstanding Expenses	800	
Increase in Trade Receivables	(1,200)	
Decrease in Trade Payables	(2000)	1,600
Cash generated from operations		1,86,000
Less: Income taxes paid (Net of Refund)		70,000
Net Cash Inflow from Operating Activities		1,16,000

Working Note:

CALCULATION OF NET PROFIT BEFORE TAX

Net Profit as per Profit & Loss A/c	1,00,000
Add: Transfer to Reserve	2,800
Add: Provision for Tax	80,000
Net Profit before Tax	1,82,800

TREATMENT OF SPECIAL ITEMS WHILE CALCULATING NET PROFIT BEFORE TAX

Item	Treatment and Reason	Remarks
Increase in General Reserve	Add back to Balance of P&LA/c to find out Net Profit Before Tax Reason: It represents an appropriation out of Current year's profits.	
Decrease in General Reserve	Subtract from Balance of P&L A/c to find out Net Profit Before Tax Reason: It represents utilization of past reserves and not of Current year's profits.	
Provision for Tax for Current Year	Add back Tax provided to Balance of P & L A/c to find out Net Profit Before Tax Reason: It is merely a book entry and does not involve any Cash outflow	1. If only Opening & Closing amounts of Provision for Tax are given, Take Provision for Tax for Current Year as Tax provided During the current year. 2. If Tax Paid is also given, Prepare Provision for Tax Account to ascertain the amount of Tax provided during the current year.
Provision for Tax for Previous Year	Subtract Tax paid from Cash from Operating Activities before tax Reason: It involves Cash outflow	1. If only Opening & Closing amounts of Provision for Tax are given, Take Provision for Tax for previous year as Tax paid during the current year. 2. If Tax provided is also given, Prepare Provision for Tax Account to ascertain the amount of Tax paid during the current year.
Proposed Dividend for Current Year it represents the amount of dividend proposed by the Board of Directors for the current year	Add back to Balance of P&LA/C to find out Net Profit Before Tax Reason: It is merely a book entry and does not involve any Cash outflow.	
Interim Dividend Board of an Interim Dividend in that dividend which is declared by the Directors for the current year during the Current year.]	Add back to Balance of P&LA/c to find out Net Profit Before Tax Reason: It represents an appropriation out of Current Year's Profits.	
Dividend on Pref. Shares	Add back to Balance of P & L A to find out Net Profit Before Tax Reason: represents an appropriation out of Current year's profits	If the date of Fresh issue/Redemption of Pref. Shares is not given, Calculate Dividend on opening balance of Pref. Shares

TREATMENT OF SPECIAL ITEMS WHILE CALCULATING CASH FROM OPERATING ACTIVITIES

Item	Treatment and Reason	Remarks
Depreciation for the Current year	Add back to Current year's profits in order to find out Cash from Operating Activities. Reason: It does not involve any Cash outflow.	In case of Missing Figure, Prepare Fixed Asset A/c (on WDV Basis) OR Provision for. Depreciation A/c to ascertain the amount of Depreciation.
Loss on Sale of Fixed |Asset / Investments	Add back to Current year's profits in order to find out Cash from Operating Activities. Reason: It does not represent an operating cost.	In case of Missing Figure, Prepare Fixed Asset Alc / Investments A/c to ascertain the amount of Loss on Sale
1. Profit on Sale of Fixed Assets/ Investments 2. Income from Investments (whether Current or Non-Current)	Subtract from Current year profits in order to find out Cash from Operating Activities. Reason: It does not represent an operating income.	In case of Missing Figure, Prepare Prepare Fixed Asset A/c Investments to ascertain the amount of Profit on Sale.
Goodwill/Patents |Amortized	Add back to Current year's profits in order to find out Cash from Operating Activities. Reason: It merely represents a book entry and does not involve any Cash flow	
preliminary Expenses/ discount on issue of Debentures written off	Add back to Current year's profits in order to find out Cash from Operating Activities. Remarks Reason: It merely represents a book entry and does not involve any Cash flow.	
Interest on Debentures/ Loans (whether disclosed as Current or Non-Current)	Add back to Current year's profits in order to find out Cash from Operating Activities Reason: It does not represent an operating cost.	If the date of Fresh issue /Redemption of debentures is not given Calculate interest on opening balance of debentures
Premium on Redemption of Debentures/ Pref. Shares	Add back to Current year's profits in order to find out Cash from Operating Activities. Net Profit before Tax Reason: It does not represent an operating cost	
Increase in Provision for Doubtful Debts	Add like an Increase in Current Liability	
Decrease in Provision for Doubtful Debts	Subtract like a Decrease in Current Liability	
Increase in Inventories Trade Receivables/ Payables against issue of Shares/Debentures	Exclude from Respective Closing Balances Reason: These do not involve any cash flow.	

ILLUSTRATION 12

From the following particulars, Calculate the Net Cash Flow from Operating Activities

Particular	Closing Rs.	Opening Rs
Profit and Loss A/c	7,000	1,000
General Reserve	15,000	10.000
Proposed Dividend	25.000	21,000
Provision for Taxation	25,000	15,000
10% Debentures	25,000	21,000
Trade Payables	1,17,500	8,500
Machinery	44,000	50,000
Goodwill	8,000	10,000
Discount on issue of Debentures	-	200
Current Investments	8,000	3,000
Inventories	24,500	6,000
Trade Receivables	1,12,300	7,300
Cash & Cash Equivalents	17,700	0

Income tax paid during the year 20,000

SOLUTION

CALCULATION OF NET CASH FLOW FROM OPERATING ACTIVITIES

Particular	Rs.	Rs
Net Profit before Tax		66,000
Adjustments for Non-Cash and Non-Operating Items :		
Depreciation	6,000	
Discount on issue of Debentures	200	
Goodwill Amortised	2,000	10,300
Interest on Debentures (₹ 21,000 × 10/100)	2,100	
Operating Profit before Working Capital Changes		76,300
Changes in Current Assets & Current Liabilities:		
Increase in Trade Payables	1,09,000	
Increase in Inventories	(18,500)	
Increase in Trade Receivables	(1,05,000)	(14,500)
Cash generated from operations		61,800
Less: Income taxes paid		(20,000)
Net Cash Inflow from Operating Activities		41,800

Working Notes:1. CALCULATION OF NET PROFIT BEFORE TAX

A. Closing balance as per Profit & Loss A/c:	7,000
Less: Opening Balance as per Profit & Loss A/c	1,000
Add: Proposed Dividend for current year	25,000
Add: Transfer to Reserve	5,000
Add: Provision for Tax for current year	30,000
B. Net Profit before Tax	66,000

2. It has been assumed that new Debentures have been issued at the end of current accounting year

Dr **3. PROVISION FOR TAX ACCOUNT**

Particulars	Rs	Particulars	Rs
To Bank A/c	20,000	By Balance b/d	15,000
To Balance c/d	25,000	By P&L A/c (balancing figure)	30,000
	45,000		45,000

ILLUSTRATION 13

From the following particulars, Calculate the Net Cash Flow from Operating Activities:

Particular	Closing Rs.	Opening Rs
Profit & Loss Ac	7,000	1,000 (Dr)
General Reserve	10,000	15,000
Proposed Dividend	25,000	21,000
Provision for Taxation	25,000	15,000
15 % Debentures	34,000	22,000
Trade Payables	22,000	24,000
Fixed Assets (Gross)	74,000	74,000
Accumulated Depreciation	30,000	24,000
10% Current Investments	20,000	10,000
Trade Receivables (Gross)	48,400	15,000
Provision for Doubtful Debts	10,000	5,000
Inventories	15,000	25,000
Cash & Cash Equivalents	5,600	1,000

Income tax provided during the year ₹ 30,000

SOLUTION 13

CALCULATION OF NET CASH FLOW FROM OPERATING ACTIVITIES

Particulars	Rs	Rs
Net Profit before Tax		58,000
Adjustments for Non-Cash and Non-Operating Items:		
Depreciation [30,000 -24,000]		6,000
Interest on Debentures 22,000 x 15/100		3,300
Interest Income on Current Investments		(1,000)
Operating Profit before Working Capital Changes		66,300
Changes in Current Assets & in Current Liabilities:		
Decrease in Inventories	10,000	
Increase in Trade Receivables (Gross)	(33,400)	
Increase in Provision for Doubtful Debts	5,000	
Decrease in Trade Payables	(2,000)	(20,400)
Cash generated from operations before tax		45,900
Less: Income taxes paid		(20,000)
Net Cash Inflow from Operating Activities		25,900

Working Notes:

1. CALCULATION OF NET PROFIT BEFORE TAX

Particulars	Rs
A. Closing Balance as per Profit & Loss A/c	7,000
Add: Opening Balance as per Profit & Loss A/c(Dr)	1,000
Add: Proposed dividend	25,000
Less: Transfer to Reserve	(5,000)
Add: Provision for Tax	30,000
B. Net Profit before Tax	58,000

2. PROVISION FOR TAX ACCOUNT

Particulars	Rs	Particulars	Rs
To Bank Alc (balancing figure)	20,000	By Balance b/d	15,000
To Balance c/d	25,000	By P & L Ac	30,000
	45,000		45,000

3. It. has been assumed that new Debentures have been issued at the end of current accounting year

4. It has been assumed that new Current Investments have been acquired at the end of current accounting year.

ILLUSTRATION 14

From the following information, calculate the Net Cash Flow from Operating Activities:

Particular	Closing Rs.	Opening Rs
Equity Share Capital	4,00,000	3,00,000
15% Preference Share Capital	1,00,000	1,50,000
General Reserve	70,000	40,000
Profit and Loss A/c	48,000	30,000
Proposed Dividend	50,000	42,000
Provision for Tax	50,000	40,000
Trade Payables	1,22,000	88,000
Tangible Fixed Assets	3,70,000	2,80,000
Intangible Assets [Goodwill]	90,000	1,15,000
Trade Receivables & Inventories	3,39,000	2,57,000

During the year a machine costing 50,000 (depreciation provided thereon 30,000) was sold for 10,000. A machine was purchased for 1,30,000. Interim Dividend paid, 20,000, Income-tax, 35,000 paid.

SOLUTION 14

CALCULATION OF NET CASH FLOW FROM OPERATING ACTIVITIES

Particular	Rs.	Rs
1. Cash Flow from Operating Activities		
A. Net Profit before tax		1,63,000
B. Adjustments for Non-Cash and Non-Operating Items:		
Depreciation	20,000	
Loss on Sale of Machinery	10,000	
Goodwill amortised	25,000	55,000
C. . Operating Profit before Working Capital Changes		2,18,000
D. Changes in Current Assets & Current Liabilities:		
Increase in Trade Payables	34,000	
Increase in Trade Receivables & Inventories	(82,000)	(48,000)
E. Net Cash Flow from Operating Activities before Tax		1,70,000
F. Less: Tax paid		(35,000)
G. Net Cash Inflow from Operating Activities after Tax		1,35,000

Working Notes:

1. CALCULATION OF NET PROFIT BEFORE TAX

Particulars	Rs
Closing Balance of P&L A/c	48,000
Less: Opening Balance of P&L A/c	(30,000)
Add: Transfer to Reserve	30,000
Add: Proposed Dividend	50,000
Add: Interim Dividend on Equity Shares	20,000
Add: Tax	45,000
Net Profit before Tax	1,63,000

Dr 2. FIXED ASSETS ACCOUNT

Particulars	Rs	Particulars	Rs
To Balance b/d	2,80,000	By Depreciation A/c (b.f.)	20,000
To Bank A/c (Purchases)	1,30,000	By Bank Alc (Sale)	10,000
		By P&L Alc (Loss) [₹20,000-10,000]	10,000
		By Balance c/d	3,70,000
	4,10,000		4,10,000

3. PROVISION FOR TAX ACCOUNT

Dr

Particulars	Rs	Particulars	Rs
To Bank A/c	35,000	By Balance c/d	40,000
To Balance cld	50,000	By P & L Alc (balancing figure)	45,000
	85,000		85,000

ILLUSTRATION 15

From the following information, calculate the Net Cash Flow from Operating Activities:

Particular	Closing Rs.	Opening Rs
Equity Share Capital	5,50,000	4,50,000
5% Preference Share Capital	2,00,000	3,00,000
General Reserve	1,50,000	1,20,000
Profit and Loss A/c	1,50,000	(1,40,000)
Securities Premium	10,000	-
Provision for Tax	50,000	40,000
Non-Current Liabilities [8% Debentures]	2,60,000	1,50,000
Short-term Borrowings (8% Bank Loan)	40,000	50,000
Trade Payables	1,05,000	1,00,000
Tangible Fixed Assets	8,60,000	6,20,000
Intangible Assets [Goodwill	15,000	20,000
Trade Receivables & Inventories	3,95,000	3,00,000
Other Non-Current Assets [Preliminary Exp.]	-	20,000

During the year a machinery costing 60,000 on which depreciation charged was 20,000 was sold for 20,000. Depreciation provided on Fixed Assets 60,000. Additional Debentures were issued at par on 1st October and Bank Loan was repaid on the same date. Dividend on equity shares @ 8% was paid on opening balance. Income Tax 45,000 has been provided during the year. Preference Shares were redeemed at a premium of 5% at the end of the year.

SOLUTION

CALCULATION OF NET CASH FLOW FROM OPERATING ACTIVITIES

Particular	Rs.	Rs
Net Profit before tax		4,16,000
Adjustment for Non-Cash and Non-Operating items:		
Depreciation on Fixed Assets	60,000	
Loss on Sale of Machinery	20,000	
Interest on Debentures [(1,50,000 x 8/100) + (1,10,000 x 8/100 x 6/12)]	16,400	
Interest on Bank Loan (50,000 × 8/100 x 6/12) + (40,000 x 8/100 x 6/12)	3,600	
Goodwill Amortised	5,000	
Preliminary Expenses Written off	20,000	
Premium on Redemption of Preference Shares	5,000	1,30,000
Operating Profit before Working Capital Changes		5,46,000
Changes in Current Assets & Current Liabilities:		
Increase in Trade Receivables & Inventories	(95,000)	
Increase in Trade Payables	5,000	(90,000)
Net Cash Flow from Operating Activities before Tax		4,56,000
Less: Tax paid		(35,000)
Net Cash Inflow from Operating Activities after Tax		4,21,000

Working Notes:

1. CALCULATION OF NET PROFIT BEFORE TAX

Particulars	Rs
Closing Balance of P&L A/c	1,50,000
Add: Opening Balance of P&L A/c (Debit)	1,40,000
Add: Provision for tax	45,000
Add: Transfer to Reserve	30,000
Add: Dividend on Equity Shares	36,000
Add: Dividend on Preference Shares	15,000
Net Profit before Tax	4,16,000

.2. FIXED ASSETS ACCOUNT

Dr.

Particulars	Rs	Particulars	Rs
To Balance b/d	6,20,000	By Depreciation Alc	60,000
To Bank Ac (Purchases) (b.f.)	3,40,000	By Bank A/c (Sale)	20,000
		By P&L Ac (Loss)	20,000
		By Balance c/d	8,60,000
	9,60,000		9,60,000

Dr. 3. PROVISION FOR TAX ACCOUNT

Particulars	Rs	Particulars	Rs
To Bank Ac (balancing figure)	35,000	By Balance c/d	40,000
To Balance b/d	50,000	By P & L Alc	45,000
	85,000		85,000

ILLUSTRATION 16

From the following information calculate Cash Flow from Operating Activities:

Particular	Closing Rs.	Opening Rs
Trade Payables	1,65,000	40,000
Intangible Assets (Goodwill]	21,000	10,000
Inventories	1,69;000	54,000
Trade Receivables	3,76,000	4,06,000

During the year, the business of Y Ltd. was purchased for 60,000 payable in fully paid equity shares of 10 each at 20% premium. The assets included Inventories 15,000. Trade Receivables 10,000 and machine 30,000. Trade Payables of 15,000 were also taken over. Net Profit before tax for the year was 7,98,000. Tax paid during the year 10,000.

SOLUTION 16

CALCULATION OF CASH FLOW FROM OPERATING ACTIVITIES

Particular	Rs.	Rs
A. Net Profit before tax		7,98,000
B. Add: Goodwill amortised		9,000
C. Operating Profit before Woking Capital Changes		8,07,000
D. Changes in Current Assets & Current Liabilities:		
Increase in Inventories [(1,69,000- 15,000) - 54,000]	(1,00,000)	
Decrease in Trade Receivables [(3,76,000- 10,000)4,06,000]	40,000	
Increase in Trade Payables [(1,65,000 15,000) - 40,000)	1,10,000	50,000
E. e Net Cash Flow from Operating Activities before Tax		8,57,000
F. Les: Tax paid		(10,000)
G. Net Cash Inflow From Operating Activities After Tax		8,47,000

Note: Goodwill Amortised

= Goodwill Purchased + Opening Goodwill - Closing Goodwill

= 60,000-(15,000 + 10,000 + 30,000 15,000] + 10,000 - 21,000 =9,000

13 HOW TO COMPUTE CASH FLOW FROM INVESTING ACTIVITIES

TREATMENT OF SPECIAL ITEMS WHILE COMPUTING

CASH FLOW FROM INVESTING ACTIVITIES

Item	Treatment	Reason
1. Sale of Fixed Assets or Investments*	Cash inflow from Investing Activities	It involves Cash Inflow.
2. Purchase of Fixed Assets or Investments*	Cash Outflow in Investing Activities.	It involves Cash Outflow.
3. Interest or Dividend on Investments* or Rent from Property	Cash Inflow from Investing Activities.	It represents the receipt of Non Operating Income. Note: If the date of Fresh Purchase /Sale of Investments is not given, Calculate Interest on Opening Bal. of Investments.
4. Increase in Accrued Interest on Investments*	Subtract from the Total Interest on Investments to ascertain the Net Amount of interest received.	It represents the amount of I Interest not yet received.

*whether Current or Non-Current

CALCULATION OF CASH FLOW FROM INVESTING ACTIVITIES

Particulars	Rs
A. Cash Inflow from Investing Activities:	XXX
Sale of Tangible Fixed Assets (e.g. Machinery) for cash	XXX
Sale of Intangible Assets (e.g. Goodwill /Patents/Trademark/Copyright) for cash	XXX
Sale of Investments(whether Current or Non-Current) for cash	XXX
Loans & Advances repayments received (whether Short term or Long term)	XXX
Incomes from Investments (whether Current or Non-Current)(For Example)	XXX
Dividend received on Shares held as Investments	XXX
Interest received on Debentures held as Investments	XXX
Rent received from Immovable Property held as Investments	XXX
B. Cash used in Investing Activities:	
Purchase of Tangible Fixed Assets (e.g. Machinery) for cash	(XXX)
Purchase of Intangible Assets (e.g. Goodwill/Patents/Trademark/Copyright) for cash	(XXX)
Purchase of Investments(whether Current or Non-Current) for cash	(XXX)
Loans & Advances granted (whether Short term or Long term)	(XXX)
C. Net Cash Inflow from Investing Activities [if A> B]	XXX
Or	or
Net Cash used in Investing Activities [If A< B]	(XXX)

ILLUSTRATION 17

From the following particulars, Calculate Net Cash Flow from Investing Activities:

Particular	Closing Rs.	Opening Rs
Goodwill	90,000	1,10,000
Patents	1,15,000	90,000
Land	90,000	1,00,000
Plant & Machinery (Net)	1,60,000	1,80,000
Furniture (Gross)	4,25,000	2,00,000
Provision for Depreciation on Furniture	42,500	20,000
10% Non-Current Investments	1,10,000	1,50,000
10% Current Investments	60,000	50,000

SOLUTION 17

CALCULATION OF NET CASH FLOW FROM INVESTING ACTIVITIES

Particulars	Rs
Purchase of Patents [1,15,000 -90,000]	(25,000)
Sale of Land [1,00,000-90,000]	10,000
Purchase of Furniture [4,25,000 - 2,00,000]	(2,25,000)
Sale of Non-Current Investments [1,50,000 1, 10,000]	40,000
Purchase of Current Investments [60,000 -50,000]	(10,000)
Interest on 10% Non-Current Investments 1,50,000 x 10/100]	15,000
Interest on 10% Current Investments [50,000 x 10/100]	5,000
Net Cash used in Investing Activities	(1,90,000)

Notes

1. It has been assumed that Investments have been sold & purchased at the end of current accounting year.
2. Decrease in Goodwill represents Goodwill Amortised.
3. Decrease in Plant & Machinery (Net) represents Depreciation.

HOW TO ASCERTAIN MISSING FIGURES (E.G, SALES, PURCHASES AND PROFITILOSS ON SALE) RELATED TO INVESTMENTS

To ascertain Missing Figures (e.g. Sales, Purchases and Profit/Loss on Sale) related to Investments, Prepare Investments Account as follows:

Dr INVESTMENTS ACCOUNT

Particulars	Rs	Particulars	Rs
To Balance b/d	.....	By Bank A/c (Sale Proceeds)	.....
To Bank A/c (Purchases)	.....	By P&L A/c (Loss on Sale)	.....
To P&L (Profit)	.....	By Balance c/d	.....
	.....		.....

ILLUSTRATION 18

Particular	Closing Rs.	Opening Rs
10% Non-Current Investments	1,60,000	60,000
10% Current Investments	60,000	20,000

At the end of the year Some Non-Current Investments costing 40,000 were sold at a loss of 1/3rd on sale and Some Current Investments costing 20,000 were sold at a profit of 25%. Net Profit before Tax 1,00,000. How will you disclose these items while preparing Cash Flow Statement as per AS-3 issued by ICAI?

SOLUTION

Dr 1. NON-CURRENT INVESTMENTS ACCOUNT

Particulars	Rs	Particulars	Rs
To Balance b/d	60,000	By Bank A/c (40,000 - 10,000)	30,000
To Bank A/c (Purchases) (b.f.)	1,40,000	By P&L Alc (Loss)	10,000
		By Balance c/d	1,60,000
	2,00,000		2,00,000

2. CURRENT INVESTMENTS ACCOUNT

Particulars	Rs	Particulars	Rs
To Balance b/d	20,000	By Bank Alc	25,000
To Bank A/c (Purchase)	60,000	By Balance c/d	60,000
To P&L Ac (Profit) (25% of 20,000]	5,000		
	85,000		85,000

CASH FLOW STATEMENT FOR THE YEAR ENDED ...

A	Cash Flow from Operating Activities	₹
	Net Profit before Tax	1,00,000
	Add: Loss on Sale of Non-Current Investments	10,000
	Less: Profit on Sale of Current Investments	(5,000)
	Less: Interest Income on Non-Current Investments	(6,000)
	Less: Interest Income on Current Investments	(2,000)
	Operating Profit before Working Capital changes	97,000
B	Cash Flow from Investing Activities	
	Purchase of Non-Current Investments	(1,40,000)
	Purchase of Current Investments	(60,000)
	Interest Income on Non-Current Investments	6,000
	Interest Income on Current Investments	2,000
	Sale of Non-Current Investments	30,000
	Sale of Current Investments	25,000
	Cash used in Investing Activities	(1,37,000)

ILLUSTRATION 19

Particular	Closing Rs.	Opening Rs
10% Non-Current Investments	1,60,000	60,000
10% Current Investments	60,000	20,000

At the end of the year Some Non-Current Investments costing 40,000 were sold at a loss of 1/3rd on sale and Some Current Investments costing 20,000 were sold at a profit of 25%. Profit / Loss on Investments was adjusted against the Capital Reserve. Net Profit before Tax 1,00,000. How will you disclose these items while preparing Cash Flow Statement as per AS-3 issued by ICAI?

SOLUTION

Dr. 1. NON-CURRENT INVESTMENTS ACCOUNT Cr.

Particulars	Rs	Particulars	Rs
To Balance b/d	60.000	By Bank A/c ₹ 40,000 - 10,000]	30,000
To Bank A/c (Purchases) (b.f.)	1,40,000	By Capital Reserve Alc (Loss)	10,000
		By Balance c/d	1,60,000
	2,00,000		2,00,000

Dr. 2. CURRENT INVESTMENTS ACCOUNT Cr.

Particulars	Rs	Particulars	Rs
To Balance b/d	20,000	By Bank A/c	25,000
To Bank A/c (Purchase)	60,000	By Balance c/d	60,000
To Capital Reserve A/c (Profit) [25% of ₹ 20,000]	5,000		
	85,000		85,000

CASH FLOW STATEMENT FOR THE YEAR ENDED

	M Cash Flow from Operating Activities	₹
	Net Profit before Tax	1,00,000
	Less: Interest Income on Non-Current Investments	6,000
	Less: Interest Income on Current Investments	2,000
	Operating Profit before Working Capital changes	92,000
B	Cash Flow from Investing Activities	
	Purchase of Non-Current Investments	(1,40,000)
	Purchase of Current Investments	(60,000)
	Interest Income on Non-Current Investments	6,000
	Interest Income on Current Investments	2,000
	Sale of Non-Current Investments	30,000
	Sale of Current Investments	25,000
	Cash used in Investing Activities	(1,37,000)

HOW TO ASCERTAIN MISSING FIGURES (E.G. SALES, PURCHASES AND PROFITILOSS ON SALE) RELATED TO DEPRECIABLE FIXED ASSETS

To ascertain Missing Figures (e.g. Sales, Purchases and Profit/Loss on Sale) related to Depreciable Fixed Assets, prepare Fixed Assets Account as follows:

FIXED ASSETS ACCOUNT

Dr. Cr.

Particulars	Rs	Particulars	Rs
To Balance b/d	.....	By Depreciation Ac	.....
To Bank A/c (Purchases)	.....	By Bank A/c (Sale)	.....
To Profit & Loss A/c (Profit)	.....	By P&L Alc (loss)	.....
To Equity Share Capital A/c (Purch.)	.....	By Balance c/d	.....
	.....		.....

ILLUSTRATION 20

Tangible Fixed Assets (Net): Closing 8,60,000, Opening ₹ 6,20,000. During the year a machine Costing 60,000 (depreciation provided thereon 20,000) was sold at a loss of 10,000. Depreciation Charged was 60.000. Net Profit before Tax ₹ 1,00,000. How. will you disclose these items while Preparing Cash Flow Statement as per AS-3 issued by ICAI?

SOLUTION

Dr. FIXED ASSETS ACCOUNT cr.

Particulars	Rs	Particulars	Rs
To Balance b/d	6,20,000	By Depreciation A/c	60,000
To Bank Ac (Purchases) (b.f.)	3,40,000	By Bank A/c (Sale)	30,000
		By P&L Alc (Loss)	10,000
		By Balance c/d	8,60,000
	9,60,000		9,60,000

CASH FLOW STATEMENT FOR THE YEAR ENDED ...

A	Cash Flow from Operating Activities	₹
	Net Profit before Tax	1,00,000
	Add: Depreciation	60,000
	Add: Loss on Sale	10,000
	Operating Profit before Working Capital changes	1,70,000
B	Cash Flow from Investing Activities	
	Purchase of Machinery	(3,40,000)
	Sale of Machinery	30,000
	Cash used in Investing Activities	(3,10,000)

ILLUSTRATION 21

Tangible Fixed Assets (Net): Closing 12,70,000, Opening 10,20,000. During the year a machine costing ? 1,40,000 (depreciation provided thereon 60,000) was sold for 50,000. Depreciation charged was 1,40,000. A machine costing 30,000 was purchased by issue of Equity Shares of 10 each at a premium of 20%.Net Profit before Tax 1,00,000. How will you disclose these items while preparing Cash Flow Statement as per AS-3 issued by ICAI?

SOLUTION

Dr FIXED ASSETS ACCOUNT

Particulars	Rs	Particulars	Rs
To Balance b/d	10,20,000	By Bank Alc (Sale)	50,000
To Bank Ac (Purchases) (b.f.)	4,40,000	By P&L A/c (Loss on Sale)	30,000
To Equity Share Capital Alc	25,000	By Depreciation Ac	1,40,000
To Securities Premium	5,000	By Balance c/d	12,70,000
	14,90,000		14,90,000

CASH FLOW STATEMENT FOR THE YEAR ENDED ...

A	Cash Flow from Operating Activities	
	Net Profit before Tax	1,00,000
	Add: Depreciation	1,40,000
	Add: Loss on Sale	30,000
	Operating Profit before Working Capital changes	2,70,000
B	Cash Flow from Investing Activities	
	Purchase of Machinery	(4,40,000)
	Sale of Machinery	50,000
	Cash used in Investing Activities	3,90,000

HOW TO ASCERTAIN MISSING FIGURES (E.G. SALES, PURCHASES AND PROFIT/LOSS ON SALE) RELATED TO DEPRECIABLE FIXED ASSETS WHEN PROVISION FOR DEPRECIATION ACCOUNT IS MAINTAINED

To ascertain Missing Figures (e.g. Sales, Purchases and Profit/Loss on Sale) related to Depreciable A Assets when Provision for Depreciation Account is maintained, prepare the following three Accounts as follows:

Dr 1. FIXED ASSETS ACCOUNT (AT COST)

Particulars	Rs	Particulars	Rs
To Balance b/d	.....	By Machinery Disposal A/c	.....
To Bank Ac (Purchases)	.....	[T/t of Cost of Machine sold]	
To Equity Share Capital A/c (Purch.)	.....	By Balance c/d	.....
	.....		.....

Dr **2. PROVISION FOR DEPRECIATION ACCOUNT**

Particulars	Rs	Particulars	Rs
To Machinery Disposal Alc (T/f of Acc. Dep. on Machine sold]	.....	By Balance b/d	.....
		By P&L A/c (Dep. Provided during the current year)	.....
To Balance c/d	.....		
	.....		.....

Dr **3. MACHINERY DISPOSAL ACCOUNT**

Particulars	Rs	Particulars	Rs
To Plant & Machinery A/c (Cost)	.....	By Provision for Depreciation A/c	.....
To Profit & Loss Alc (Profit)	.....	By Bank Alc (Sale proceeds)	.....
		By Profit & Loss Ac (Loss on sale)	.....
	.....		.....

ILLUSTRATION 22

Particular	Closing Rs.	Opening Rs
Tangible Fixed Assets	16,20,000	13,20,000
Accumulated Depreciation	3,80,000	3,00,000

During the year a machine having book value of 80,000 (depreciation provided thereon 60,000) was sold at a loss of 30,000. Net Profit before Tax 1,00,000. How will you disclose these items while preparing Cash Flow Statement as per AS-3 issued by ICAI?

SOLUTION

Dr **1. FIXED ASSETS ACCOUNT (AT COST)**

Particulars	Rs	Particulars	Rs
To Balance b/d	13,20,000	By Machinery Disposal Alc	1,40,000
To Bank A/c (Purchases)	4,40,000	By Balance c/d	16,20,000
	17,60,000		17,60,000

Dr **2. PROVISION FOR DEPRECIATION ACCOUNT**

Particulars	Rs	Particulars	Rs
To Machinery Disposal Alc	60,000	By Balance b/d	3,00,000
To Bank c/d	3,80,000	By P&L Ac (Depreciation for current year) (Balancing figure)	1,40,000
	4,40,000		4,40,000

Dr **3. MACHINERY DISPOSAL ACCOUNT**

Particulars	Rs	Particulars	Rs
To Fixed Assets Alc	1,40,000	By Provision for Depreciation A/c	60,000
		By Bank Alc (b.f.)	50,000
		By Profit and Loss A/c (Loss)	30,000
	1,40,000		1,40,000

CASH FLOW STATEMENT FOR THE YEAR ENDED...

A	Cash Flow from Operating Activities	₹
	Net Profit before Tax	1,00,000
	Add: Depreciation	1,40,000
	Add: Loss on Sale	30,000
	Operating Profit before Working Capital changes	2,70,000
B	Cash Flow from Investing Activities	
	Purchase of Machinery	(4,40,000)
	Sale of Machinery	50,000
	Cash used in Investing Activities	(3,90,000)

ILLUSTRATION 23

Particular	Closing Rs.	Opening Rs
Tangible Fixed Assets	16,50,000	13,20,000
Accumulated Depreciation	3,80,000	3,00,000

During the year a machine having book value of ₹ 80,000 (depreciation provided thereon ₹ 60,000) was sold at a loss of 37.5%. A machine costing ₹ 30,000 was purchased by issue of Equity Shares of ₹ 10 each at a premium of 20%. Net Profit before Tax ₹ 1,00,000. How will you disclose these items while preparing Cash Flow Statement as per AS-3 issued by ICAI

SOLUTION

Dr 1. FIXED ASSETS ACCOUNT (AT COST)

Particulars	Rs	Particulars	Rs
To Balance b/d	13,20,000	By Machinery Disposal A/c	1,40,000
To Bank Ac (Purchases)	4,40,000	By Balance c/d	16,50,000
To Equity Share Capital A/c	25,000		
To Securities Premium	5,000		
	17,90,000		17,90,000

Dr 2. PROVISION FOR DEPRECIATION ACCOUNT

Particulars	Rs	Particulars	Rs
To Machinery Disposal A/c	60,000	By Balance b/d	3,00,000
To Bank c/d	3,80,000	By P&L Ac (Depreciation for current year) (Balancing figure)	1,40,000
	4,40,000		4,40,000

Dr **3. MACHINERY DISPOSAL ACCOUNT**

Particulars	Rs	Particulars	Rs
To Fixed Assets A/c	1,40,000	By Provision for Depreciation A/c	60,000
		By Bank Alc (b.f.)	50,000
		By Profit and Loss A/c (Loss)	30,000
	1,40,000		1,40,000

CASH FLOW STATEMENT FOR THE YEAR ENDED ...

A	Cash Flow from Operating Activities	₹
	Net Profit before Tax	1,00,000
	Add: Depreciation	1,40,000
	Add: Loss on Sale	30,000
	Operating Profit before Working Capital changes	2,70,000
B	Cash Flow from Investing Activities	
	Purchase of Machinery	(4,40,000)
	Sale of Machinery	50,000
	Cash used in Investing Activities	(3,90,000)

ILLUSTRATION 24

From the following information, Calculate Net Cash Flow from Operating Activities and Investing Activities:

Particulars	Closing ₹	Opening ₹
Profit and Loss A/c	3,92,000	(1,08,000)
General Reserve	1,40,000	3,20,000
Proposed Dividend	1,50,000	1,20,000
Provision for Tax	40,000	20,000
Trade Payables	2,00,000	1,00,000
Tangible Fixed Assets (Net)	12,40,000	10,20,000
Intangible Assets [Goodwill]	1,000	10,000
10% Non-Current Investments	1,60,000	60,000
10% Current Investments	60,000	20,000
Trade Receivables & Inventories	5,20,000	4, 60,000

During the year a machine costing ₹ 1,40,000 (depreciation provided thereon 60,000) was sold for ₹ 50,000. Depreciation charged was ₹ 1,40,000. Tax paid was ₹ 10,000.At the end of the year some Non-Current Investments costing ₹ 40,000 were sold at a profit of 25%,

SOLUTION

CALCULATION OF NET CASH FLOW FROM OPERATING ACTIVITIES AND INVESTING ACTIVITIES

	Particulars	₹	₹
I.	Cash Flow from Operating Activities:		
	A. Net Profit before tax		5,00,000
	B. Adjustments for Non-Cash and Non-Operating Items		
	Depreciation	1,40,000	
	Loss on Sale of Machinery	30,000	
	Goodwill amortised	9,000	
	Profit on Sale of Non-Current Investments	(10,000)	
	Interest Income on Non-Current Investments	(6,000)	
	Interest Income on Current Investments	(2,000)	1,61,000
	C. Operating Profit before Working Capital Changes		6,61,000
	D. Changes in Current Assets & Current Liabilities:		
	Increase in Trade Payables	1,00,000	
	Increase in Trade Receivables & Inventories	(60,000)	40,000
	E. Net Cash Flow from Operating Activities before Tax		7,01,000
	F. Less: Tax paid		(10,000)
	G. Net Cash Inflow from Operating Activities after Tax		6,91,000
	(ii) Cash Flow from Investing Activities:		
	Sale of Machinery		50,000
	Purchases of Fixed Assets		(4,40,000)
	Purchases of Non-Current Investments		(1,40,000)
	Purchases of Current Investments		(40,000)
	Sale of Non-Current Investments		50,000
	Interest received on Non-Current Investments		6,000
	Interest received on Current Investments		2,000
	Net Cash used in Investing Activities		(5,12,000)

Working Notes:

1. CALCULATION OF NET PROFIT BEFORE TAX

Particulars	₹
Closing Balance of P&L A/c	3,92,000
Add: Opening Balance of P&L A/c (Debit)	1,08,000
Less: Transfer from Reserve	(1,80,000)

Add: Proposed Dividend	1,50,000
Add: Tax	30,000
Net Profit before Tax	5,00,000

Dr. 2.FIXED ASSETS ACCOUNT Cr.

Particulars	Rs	Particulars	Rs
To Balance b/d	10,20,000	By Bank Alc (Sale)	50,000
To Bank Alc (Purchases) (b.f.)	4,40,000	By P&L Alc (Loss)	30,000
		By Depreciation Alc	1,40,000
		By Balance c/d	12,40,000
	14,60,000		14,60,000

Dr. 3. NON-CURRENT INVESTMENTS ACCOUNT Cr

Particulars	Rs	Particulars	Rs
To Balance b/d	60,000	By Bank A/c 40,000 + 10,000]	50,000
To Bank Alc (Purchases) (b.f.)	1,40,000	By Balance c/d	1,60,000
To Profit and Loss Alc (Profit) ₹ 40,000 x 25/100)	10,000		
	2,10,000		2,10,000

Dr . 4. PROVISION FOR TAX ACCOUNT Cr

Particulars	Rs	Particulars	Rs
To Bank A/c [Tax paid]	10,000	By Balance b/d	20,000
To Balance cld	40,000	By Profit and Loss A/c (b.f.) [Provision made]	30,000
	50,000		50,000

14.0 HOW TO COMPUTE CASH FLOW FROM FINANCING ACTIVITIES

TREATMENT OF SPECIAL ITEMS WHILE CALCULATING CASH FROM FINANCING ACTIVITIES

Item	Treatment	Reason
1. Increase in Equity Share Capita/Pref. Share Capital/Debentures/ Loans	Cash Inflow from Financing Activities	It represents the issue of New Shares/Debentures.
2 Decrease in Equity Share Capita/ Pref. Share Capital/Debentures/Loans*	Cash Outflow in Financing Activities	It represents the buy-back of Equity Shares or Redemption of Pref. Share Capital/Debentures.
3. Increase in Securities Premium	Cash Inflow from Financing Activities	It represents the issue of New Shares/Debentures at premium
4. Increase in Discount on Issue of Debentures/ Shares	Subtract from the increase n amount of Share Capital/	It represents the issue of New shares/Debentures at discount

	Debentures to ascertain the Net amount of issue.	
5. Increase in Underwriting Commission	Cash Outflow in Financing Activities	It represents he payment of underwriting commission in raising Share Capital Debentures
6. Interest on Debentures/Loans	Cash Outflow in Financing Activities	It represents the payment of interest on Debentures. Note: If the date of Fresh issue /Redemption of Debentures is not given, Calculate Interest on Opening Balance of
7. Increase in Unpaid Interest on Debentures/Loans	subtract from the Total Interest on Debentures to ascertain the Net amount of Interest paid.	It represents the amount of Interest not yet paid.
8. Proposed Dividend for Previous Year [It represents the amount of dividend proposed by the Board of Directors for the Previous year.]	Cash Outflow in Financing Activities	It represents the payment of Dividend
9. Increase in Unclaimed Dividend	subtract from the amount of Proposed Dividend for the previous year to ascertain the net amount of dividend paid	It represents the amount of Dividend not yet paid.
10. Interim Dividend [An Interim Dividend is that dividend which is declared by the Board of Directors for the current year during the current year.]	Cash Outflow in Financing Activities	It represents the payment of Dividend
11. Dividend on Pref. Shares	Cash Outflow in Financing Activities	It represents the payment of Pref. Dividend. Note: If the date of Fresh issue/ Redemption of Pref. Shares is not given, Calculate Dividend on Opening Balance of Pref. Share.

whether Short-term or Long-term

CALCULATION OF NET CASH FLOW FROM FINANCING ACTIVIES

Particulars	₹
A. Cash Inflows from Financing Activities:	
issue of Equity Share Capital for cash [including Premium but exc. Discount]	xxx
Issue of Pref: Share Capital for cash [including Premium but excl. Discount	xxx
Issue of Debentures for cash [including Premium. but excl. Discount]	xxx

Loans raised (whether Short term or Long term)	xxx
B. Cash used in Financing Activities:	
Buy back of Equity Shares [including Premium]	(xxx)
Redemption of Preference Shares for cash [including Premium)	(xxx)
Redemption of Debentures for cash [including Premium]	(xxx)
Repayment of Loans (whether Short term or Long term)	(xxx)
Interim Dividend paid on Equity Shares	(xxx)
Final Dividend paid on Equity Shares	(xxx)
Final Dividend paid on Preference Shares	(xxx)
Interest paid on Debentures & Loans (whether Short term or Long term)	(xxx)
	(xxx)
C. Net Cash Inflow from Financing Activities [If A > B]	xxx
or	Or
Net Cash Flow used in Financing Activities [If A < B]	(xxx)

ILLUSTRATION 25

From the following particulars, Calculate Net Cash Flow from Financing Activities:

Particulars	Closing ₹	Opening ₹
Equity Share Capital	4,00,000	3,00,000
Pref. Share Capital	1,00,000	1,50,000
Securities Premium	15,000	5,000
Proposed Dividend on Equity. Shares	35,000	30,000
Proposed Dividend on Pref. Shares	15,000	15,000
10% Debentures	4,00,000	3,00,000

SOLUTION

CALCULATION OF NET CASH FLOW FROM FINANCING ACTIVITIES

Particulars	₹
Proceeds from Issue of Equity Share Capital [(4,00,000 3,00,000) + 10,000 Premium	1,10,000
Proceeds from Issue of Debentures (4,00,000 - 3,00,000]	1,00,000
Redemption of Preference Shares [1,50,000 - 1,00,000]	(50,000)
Interest on Debentures paid [₹ 3,00,000 x 10/100]	(30,000)
Dividend on Equity. Shares	(30,000)
Dividend on Pref. Shares	(15,000)
Net Cash Inflow from Financing Activities	85,000

Notes

1. It has been assumed that the new Debentures have been issued at par at the end of current accounting year.
2. It has been assumed that Preference Shares have been redeemed at the end of current accounting year.

ILLUSTRATION 26

From the following particulars of BT Ltd., calculate Net Cash Flow from Financing Activities:

Particulars	Closing ₹	Opening ₹
Equity Share Capital	9,00,000	6,00,000
18% Pref. Share Capital	1,00,000	4,00,000
Securities Premium	1,30,000	1,00,000
14% Debentures	3,00,000	2,00,000

Additional Information: During the year Preference Dividend on preference shares and an Interim Dividend on equity shares @ 15% were paid on 30th Sept. New Shares and Debentures were issued on 1st Oct. Preference shares were redeemed at the end of the year at a premium of 5%. Such premium has been provided out of profits.

SOLUTION

CALCULATION OF NET CASH FLOW FROM FINANCING ACTIVITIES

Particulars	₹
Issue of Equity Share Capital ₹ 9,00,000 6,00,000 + 30,000 (Premium)]	3,30,000
Issue of Debentures 3,00,000 - 2,00,000]	1,00,000
Redemption of Preference Shares (3,00,000 + 15,000)	(3,15,000)
Interest paid on Debentures [(2,00,000 x 14/100) + 1,00,000 >x 14/100 >x 6/12)]	(35,000)
Interim Dividend paid on Equity Shares [6,00,000 x 15/100)	90,000)
Dividend paid on Pref. Shares (4,00,000 x 18/100]	(72,000)
Net Cash used in Financing Activities	(82,000)

ILLUSTRATION 27

Particulars	31.03.2016 ₹	31.03.2015 ₹
14 % Debentures	2,60,000	1,50,000
14% Short-term Bank Loan	40,000	50,000

New Debentures were issued on 01.01.2016 and Bank Loan was repaid on the same date. Unpaid interest on Debentures on 31.03.2016 10,000, Net Profit before Tax 1,00,000 how will you disclose these items while preparing Cash Flow Statement as per AS-3 issued by ICAI?

SOLUTION

CASH FLOW STATEMENT FOR THE YEAR ENDED 31ST MARCH, 2016

A	Cash Flow from Operating Activities	₹
	Net Profit before Tax	1,00,000
	Add: Interest on Debentures [(1,50,000 x 14%)+(1,10,000 x 14% x3/12]	24,850
	Add: Interest on Bank Loan [(50,000 x 14% x 9/12)+(40,000 x 14% x 3/12	6,650
	Operating Profit before Working Capital changes	
B	Cash Flow from Financing activities	1,31,500
	Issue of Debentures	1,10,000
	Bank Loan repaid	(10,000)
	Interest on Debentures [24,850 - 10,000]	14,850
	Interest on Bank Loan	6,650
	Cash Flow from Financing activities	78,500

ILLUSTRATION 28

From the following information, Calculate Net Cash Flow from Operating Activities & Financing Activities:

Particulars	31.03.2016 ₹	31.03.2015 ₹
Equity Share Capital	5,50,000	4,50,000
5% Preference Share Capital	2,00,000	3,00,000
General Reserve	1,50,000	1,20,000
Profit and Loss Ac	1,50,000	(1,40,000)
Securities Premium	10,000	-
Provision for Tax	50,000	40,000
Non-Current Liabilities [8% Debentures]	2,60,000	1,50,000
Short-term Borrowings (8% Bank Loan)	40,000	50,000
Increase in Trade Payables	2,00,000	1,00,000
Increase in Trade Receivables & inventories	5,20,000	4,60,000

Additional Information: During the year Additional Debentures were issued at par on 1st October, and Bank Loan was repaid on the same date. Dividend on equity shares @ 8% was paid on opening balance. Income Tax 45,000 has been provided during the year. Preference Shares were redeemed at a prenmium of 5% at the end of the year.

SOLUTION

CALCULATION OF CASH FLOW FROM OPERATING ACTIVITIES
AND FINANCING ACTIVITIES

Particulars	₹	₹
1. Cash Flow from Operating Activities		
Net Profit before tax		
Adjustment for Non-Cash and Non-Operating Items :		4,16,000
Interest on Debentures (₹ 1,50,000 x 8/100) + (1,10,000 x 8/100 x 6/12)		16,400
Interest on Bank Loan [(50,000x 8/100 x 6/12) + (40,000 x 8/100 x 6/12)		3,600
Premium on Redemption of Preference Shares		5,000
Operating Profit before Working Capital Changes		4,41,000
Changes in Current Assets & Current Liabilities:		0
Increase in Trade Payables	1,00,000	
Increase in Trade Receivables & Inventories	(60,000)	40,000

Net Cash Flow from Operating Activities before Tax		4,81,000
Less: Tax paid		(35,000)
Net Cash Inflow from Operating Activities after Tax		4,46,000
2. Cash Flow from Financing Activities:		
Issue of Share Capital ₹ 1,00,000 + 10,000 (Premium)]		1,10,000
Issue of Debentures		1,10,000
Interest on Debentures		(16,400)
Interest on Bank Loan		(3,600)
Dividend on Equity Shares [₹ 4,50,000 x 8/100]		(36,000)
Dividend on Preference Shares (3,00,000 x 5/100		(15,000)
Redemption of Preference Shares[₹ 1,00,000 + 5,000]		(1,05,000)
Bank Loan Repaid [₹ 50,000 - 40,000]		(10,000)
Net Cash from in Financing Activities		34,000

Working Notes:

1. CALCULATION OF NET PROFIT BEFORE TAX

Particulars	₹
Closing Balance of P&L A/c	1,50,000
Add: Opening Balance of P&L Alc (Debit)	1,40,000
Add: Provision for tax	45,000
Add: Transfer to Reserve	30,000
Add: Dividend on Equity Shares	36,000
Add! Dividend on Preference Shares	15.000
Net Profit before Tax	4,16,000

Dr 2. PROVISION FOR TAX ACCOUNT Cr

Particulars	Rs	Particulars	Rs
To Bank Alc (balancing figure)	35,000	By Balance c/d	40,000
To Balance cld	50,000	By P &LAc	45,000
	85,000		85,000

15.0 PRACTICAL STEPS INVOLVED IN THE PREPARATION OF CASH FLOW STATEMENT

The various steps involved in the preparation of Cash Flow Statement are given below:

PRACTICAL STEPS INVOLVED IN THE PREPARATION OF CASH FLOW STATEMENT

Step 1: Calculate the Cash from Operating Activities.
Step 2: Calculate the Cash Flow from Investing Activities.
Step 3: Calculate the Cash Flow from Financing Activities.
Step 4: Calculate the Net Increase (Decrease) in Cash and Cash Equivalents
Step 4 Step 1 + Step 2+ Step 3
Step 5: Calculate the Cash and Cash Equivalents at the Beginning of Period
Step 6: Calculate the Cash and Cash Equivalents at the End of Period
Step 6= Step 4 + Step 5

IMPORTANT INSTRUCTIONS FOR WORKING NOTES

1. Net Profit before Tax	Calculate Net Profit before Tax [Refer to Working Note No. 1 under Para 16.0].
2. Fixed Assets Account	Prepare Fixed Assets Account to ascertain Missing Figures (e.g. Sales, Purchases and Profit Loss on Sale) related to Depreciable Fixed Assets (Refer to Working Note No. 2 under Para 16.0].
3. Investments Account	Prepare Investments Account to ascertain Missing Figures (e.g. Sales, Purchases and Profit/Loss on Sale) related to Investments [Refer to Working Note No. 3 under Para 16.0].
4. Provision for Tax Account	Prepare Provision for Tax Account to ascertain Missing Figure (e.g. Tax provided or Tax paid) (Refer to Working Note No. 4 under Para 16.0].
5. Interest on Debentures/ Loans (whether Current or Non-Current)	Calculate Interest on Opening Balance of Debentures/Loan if the date of Fresh issue/Redemption of Debentures/Loan is not given
6. Dividend on Pref .Shares	Calculate Dividend on Opening Balance of Pref. Shares if the date of Fresh issue /Redemption of Pref. Shares is not given.
7. Premium on Redemption of Pref. Share Capital/ Debentures	Calculate Premium on Redemption of Pref. Share Capital/ Debentures on Pref. Share Capital/Debentures redeemed during the year.
8. Interest on Investments (whether Current or Non Current	Calculate Interest at given % on Opening Balance of Investments if the date of Fresh Purchase/Sale of Investments is not given
9. Proposed Dividend for Previous Year	Unless otherwise stated it is presumed that the 'Proposed Dividend for Previous Year has been declared sub sequently the Annual General Meeting and has been paid during the current accounting period.
10. Provision for Tax for Previous Year	Unless otherwise stated, it presumed that the' Provision for Tax for Previous Year' has been paid subsequently during the current year.
11. Transactions which do not appear in CFS	1. Issue of Shares/Debentures on conversion of Debentures and 2. Purchase of an Asset against the issue of Shares/ Debentures Reason: These transactions do not involve any inflow/ outflow of cash.

PRECAUTIONS WHILE PREPARING CASH FLOW STATEMENT

1. Check whether Current Year's Figures are given first or Previous Years Figures are given first

2. Check whether Balance of Profit & Loss Account is Debit or Credit. If Balance of Profit & Loss Account is Debit, Add or Less very carefully.

3. Check whether Balance of General Reserve during current year has increased or decreased. If Balance of General Reserve during current year has decreased, Subtract Transfer from General Reserve from Closing Balance of Profit & Loss Account.

4. Check whether Interest % on Investments is given or not. If Interest % on Investments is given, Do not forget to make adjustment for Interest on Investments (whether Current or Non Current) while computing Cash from Operating Activities and Investing Activities.

5. Do not forget to make adjustment for Interest on Borrowings (whether Short term or Long term) while computing Cash from Operating Activities and Financing Activities

6. Exclude Increase in Inventories, Trade Receivables/ Payables against issue of Shares Debentures from Respective Closing Balances. Reason: These do not involve any cash flow.

16.0 FORMAT OF CASH FLOW STATEMENT

A Format of Cash Flow Statement is given below:

CASH FLOW STATEMENT OF M/S

for the year ended 31st March,

Particulars	₹	₹
1. Cash Flow from Operating Activities:		
A. Net Profit before taxation, and extraordinary item		XXX
B. Adjustment for Non-Cash and Non-Operating Items:(For Example)		
Depreciation	XXX	
Interest on Debentures & Loans (whether Short term or Long term)	XXX	
Preliminary Expenses/Underwriting Commission/Discount on	XXX	
issue of Debentures/Shares written of	XXX	
Goodwill/Patents/Trade Marks/Copyright amortised	XXX	
loss on Sale of Investments (whether Current or Non-Current)	XXX	
Premium payable on redemption of Preference shares/Debentures		
Profit on Sale of Investments (whether Current or Non-Current)	(XXX)	

Income from Investments (whether Current or Non-Current)	(XXX)	
Income from Investments (whether Current or Non-Current)	(XXX)	XXX
C. Operating Profit before Working Capital Changes		XXX
D. D. Changes in Current Assets (Excluding Cash and Cash Equivalents) & Current Liabilities: (Excluding Bank over Draft & Cash Credit) other than due to issue of Shares /Debentures		
Decrease in Inventories	XXX	
Decrease in Trade Receivables	XXX	
Decrease in Prepaid expenses	XXX	
Decrease in Accrued Commission	XXX	
Increase in Trade Payables	XXX	
Increase in Outstanding expenses	XXX	
Increase in Commission received in advance	XXX	
Increase in Provision for Doubtful Debts or Discount on Debtors	XXX	
Increase in Inventories	(XXX)	
Increase in Trade Receivables	(XXX)	
Increase in Prepaid Expenses	(XXX)	
Increase in Accrued Commission	(XXX)	
Decrease in Trade Payables	(XXX)	
Decrease in Outstanding expenses	(XXX)	
Decrease in Commission received in advance	(XXX)	
Decrease in Provision for Doubtful Debts/Discount on Debtors	(XXX)	XXX
E. Net Cash Flow from Operating Activities before Tax	XXX	
F. Less: Income taxes paid (Net of Refund)	(XXX)	
G. Net Cash Flow from Operating Activities before extraordinary item	XXX	
H. Extraordinary items		XXX
L. Net Cash Flow from (used in) Operating Activities		XXX
II Cash Flow from Investing Activities:		
Sale of Machinery/Land & Building for cash		XXX
Sale of Investments (whether Current or Non-Current) for cash		XXX

Sale of Patents/Trademarks/Copyrights for cash		XXX
Income received from Investments (whether Current or Non-Current)	XXX	
Purchase of Machinery/Land & Building for cash		(XXX)
Purchase of Investments (whether Current or Non-Current) for cash		(XXX)
Purchase of Patents/Trademarks/Copyrights/Goodwill for cash		(XXX)
Net Cash Flow from (used in) Investing Activities		XXX
III Cash Flow from Financing Activities:		
Issue of Share Capital for cash		XXX
Issue of Debentures for cash		XXX
Loans raised (whether Short term or Long term)		XXX
Redemption of Preference Shares/Buy - back of Equity shares		(XXX)
Redemption of Debentures for cash		(XXX)
Loans repaid (whether Short term or Long term)		(XXX)
Interest paid on Debentures/Loans(whether Short term or Long term)	(XXX)	
Interim Dividend paid (Excluding Unpaid/Unclaimed)		(XXX)
Final Dividend paid (Excluding Unpaid/Unclaimed)		(XXX)
Net Cash Flow from (used in) Financing Activities		XXX
IV. Net Increase (Decrease) in Cash and Cash Equivalents [I+ I+ II]	XXX	
V. Cash and Cash Equivalents at the Beginning of Period		
Cash in hand	XXX	
Cash at bank	XXX	
Cash Equivalents (Investments having maturity of 3 months or less)	XXX	XXX
VI. Cash and Cash Equivalents at End of Period [IV +V]		
Cash in hand	XXX	
Cash at bank	XXX	
Cash Equivalents (Investments having maturity of 3 months or less)	XXX	XXX

Working Notes:

1. CALCULATION OF NET PROFIT BEFORE TAX

Particulars	₹
Closing Balance of P&L A/c	XXX
Less: Opening Balance of P&L A/c(Cr.)[Add: Opening Balance of P&L A/c(Dr.)]	XXX
Add: Proposed Dividend for the current year.	XXX
Add: Interim Dividend paid during the Current year	XXX
Add: Transfer to Reserve [Less: Transfer from Reserve]	XXX
Add: Provision for Tax made during the Current Year	XXX
Less: Refund of Tax credited to P&L A/c	XXX
Net Profit before Tax	XXX

2. FIXED ASSETS ACCOUNT

Dr. Cr.

Particulars	Rs	Particulars	Rs
To Balance b/d	.....	By Bank A/c (Sale)	.....
To Bank A/c (Purchases)	.....	By P&L Alc (Loss)	.....
To P &L Ac (Profit)		by Depreciation A/c	.....
To Equity Share Capital A/c (Purch.)	.....	By Balance c/d	.....
	.....		.....

3. INVESTMENTS ACCOUNT

Dr Cr

Particulars	Rs	Particulars	Rs
To Balance b/d	.....	By Bank Ac (Sale Proceeds)	.....
To Bank Ac (Purchases)	.....	By P&L A/c (Loss on Sale)	.....
To P&L (Profit)	.....	By Balance c/d	.....
	.....		.....

4. PROVISION FOR TAX ACCOUNT

Dr Cr

Particulars	Rs	Particulars	Rs
To Bank Ac	.....	By Balance c/d	.....
To Balance cld	.....	By P & L A/c	.....
	.....		.....

ILLUSTRATION 29

From the following information, prepare a Cash Flow Statement:

BALANCE SHEETS AS AT

Particulars	Note	31.03.2016 ₹	31.03.2015 ₹
1. EQUITY AND LIABILITIES			
1. Shareholders' Funds			
(a) Share Capital	1	5,00,000	4,50,000
(b) Reserves and Surplus	2	1,28,000	70,000
(2) Non-Current Liabilities		-	-
(3) Current Liabilities			
Trade Payables		99,000	75,000
Other Current Liabilities (Bank Overdraft)		23,000	13,000
Short-term Provisions	3	1,00,000	82,000
Total		8,50,000	6,90,000
II. ASSETS			
(1) Non-Current Assets			
Tangible Fixed Assets		3,70,000	2,80,000
Intangible Assets [Goodwill]		90,000	1,15,000
(2) Current Assets			
Current Investments		10,000	15,000
Cash & Cash Equivalents		41,000	23,000
Other Current Assets		3,39,000	2,57,000
Total		8,50,000	6,90,000

Notes to Accounts:

Particulars	Note	31.03.2016 ₹	31.03.2015 ₹
1. Share Capital			
Equity Share Capital		4,00,000	3,00,000
15% Preference Share Capital		1,00,000	1,50,000
		5,00,000	4,50,000
2. Reserves and Surplus			
General Reserve		70,000	40,000
Profit and Loss A/c		48,000	30,000
Securities Premium		10,000	-
		1,28,000	70,000
3. Short-Term Provisions			
Proposed Dividend		50,000	42,000
Provision for Tax		50,000	40,000
		1,00,000	82,000

Additional Information: A machine costing 50,000 (depreciation provided thereon 30,000) was sold for 10,000. Depreciation charged during the year was 20,000. Interim Dividend paid, ₹ 20,000 paid, Income-tax, 35,000 paid.

SOLUTION

CASH FLOW STATEMENT

for the year ended 31st March, 2016

Particulars	₹	₹
1. Cash Flow from Operating Activities		
A. Net Profit before tax		1,63,000
b. Adjustments for Non-Cash and Non-Operating Items:		
Depreciation	20,000	
Loss on Sale of Machinery	10,000	
Goodwill amortised	25,000	55,000
C. Operating Profit before Working Capital Changes		2,18,000
D. Changes in Current Assets & Current Liabilities:		
Increase in Trade Payables	24,000	
Increase in Other Current Assets	(82,000)	(58,000)
E. Net Cash Flow from Operating Activities before Tax		1,60,000
F. Less: Tax paid		(35,000)
G. Net Cash Inflow from Operating Activities after Tax		1,25,000
2. Cash Flow from investing Activities:		
Sale of Machinery		10,000
Purchases of Fixed Assets		(1,30,000)
Sale of Current Investments		5,000
Net Cash used in Investing Activities		(1,15,000)
3. Cash Flow from Financing Activities:		
Issue of Share Capital [1,00,000 + *₹ 10,000)		1,10,000
Interim Dividend paid on Equity Shares		(20,000)
Final Dividend paid		(42,000)
Redemption of Preference Shares		(50,000)

Net Cash used in Financing Activities		(2,000)
4. Net Increase in Cash and Cash Equivalents [I + II + II]		8,000
5. Opening Cash and Cash Equivalents [23,000 13,000]		10,000
6. Closing Cash and Cash Equivalents ₹ 41,000- 23,000]		18,000

Working Notes:

1. CALCULATION OF NET PROFIT BEFORE TAX

Particulars	₹
Closing Balance of P&L A/c	48,000
Less: Opening Balance of P&L A/c	(30,000)
Add: Transfer to Reserve	30,000
Add: Proposed Dividend	50,000
Add: Interim Dividend on Equity Shares	20,000
Add: Tax	45,000
Net Profit before Tax	1,63,000

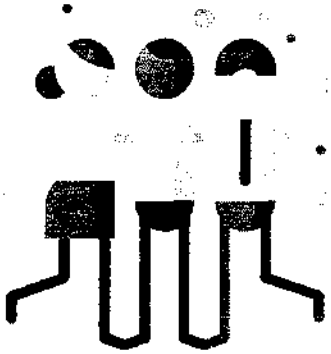
Dr . 2. FIXED ASSETS ACCOUNT. Cr

Particulars	Rs	Particulars	Rs
To Balance b/d	2,80,000	By Depreciation A/c	20,000
To Bank A/c (Purchases) (b.f.)	1,30,000	By Bank Alc (Sale)	10,000
		By P&L Ac (Loss)	10,000
		By Balance c/d	3,70,000
	4,10,000		4,10,000

Dr 3. PROVISION FOR TAX ACCOUNT Cr

Particulars	Rs	Particulars	Rs
To Bank Alc	35,000	By Balance c/d	40,000
To Balance c/d	50,000	By P & L Ac (balancing figure)	45,000
	85,000		85,000

CMA STUDENTS AND TEAM AAC CELEBRATING SUCCESS OF CMA INTER CLEARED STUDENT



.....NEXT CAN BE YOU.

CHAPTER 4-FUNDS FLOW STATEMENT

1.0 MEANING OF FUNDS FLOW STATEMENT

The Funds Flow Statement consists of two terms 'Fund' and 'Flow'. Fund may be interpreted as cash or working capital or all financial resources. Flow means change or movement. Therefore, when the term 'Fund' is interpreted as 'working capital', the funds flow statement means statement of changes in working capital. It shows

1. the specific sources from which working capital was generated by an enterprise.
2. the specific uses for which working capital was used by an enterprise.
3. Net change in working capital indicating the difference between the total sources and total uses.

Net working capital represents that portion of current assets which is financed through long-term Sources

Thus, Net Working Capital = Current Assets - Current Liabilities
Inis statement is also known as Statement of Sources and Applications of Funds, or Statement of Sources and Uses of Working Capital

2.0 HOW TO DETERMINE WHETHER AN ASSET IS A CURRENT ASSET OR NON CURRENT ASSET

An asset is classified either as a current asset or as a non-current asset on the basis of the purpose for which an asset is held in the hands of user. If all the answers to the following questions are negative, the asset will be treated as a non-current asset.

Q1. Whether it is Cash or Bank Balance.
Q2. Whether it is expected to be converted into cash
Q3. Whether it is expected to be consumed in the production of goods or rendering services in the normal course of business.

For example:

Items Questions	Stock of Finished Goods	Stock of Raw Material & Work in-Progress	Debtors & BIR	Land & Building
Q1	No	No	No	No
Q2	Yes	No	Yes	No
Q3	No	Yes	No	No
Result	Current Asset	Current Asset	Current Asset	Non-current

Examples of Non-current Assets include Goodwill, Land & Building, Plant and Machinery, Furniture and Fixtures, Long-term Investments.

Examples of Non-current Liabilities include Share Capital, Long-term Loans, Debentures, Public

Deposits Payable after 12 months from the date of Balance Sheet.

3.0 WHEN DOES THE FLOW OF WORKING CAPITAL ARISE?

The Working Capital flow arises when the net effect of a transaction is either to increase or decrease the amount of working capital. The transaction which affects both a Current Account (e.g., account of Current asset or current liability) and a Non-Current Account (e.g., account of non-current asset or non-current liability), causes a change in working capital.

4.0 SOURCES OF FUND

Any transaction which increases the amount of working capital is a source of working capital. The working capital increases if a transaction increases current assets or decreases current liabilities The major sources of working capital are summarised as follows:

1 Issue of shares (whether Equity or Preference) for Cash
2. Raising of Long-tern Debt (e.g., issue of debentures for Cash)
3. Sale of Non-current Assets for Cash
4. Non-operating Incomes (e.g., Dividend and Interest on Investment)
5. Funds from Operations

5.0 APPLICATIONS OF FUND

Any transaction which decreases the amount of working capital is an application of working capital The working capital decreases if a transaction decreases current assets or increases current liabilities. The major uses of Working capital are summarised as follows:

1.Redemption of Redeemable Preference Shares for Cash and Buyback of shares
2. Repayment of Long-term Debt
3 Purchase of Non-current Assets for Cash
4 Payment of cash dividend (whether Final or Interim)
5 Funds used in Operations
6 Non-operating Expenses (e.g., Payment of Preliminary Expenses, Payment of Underwriting Commission)

ILLUSTRATION 1

State, which of the following would result in inflow/outflow of funds if the funds were defined as Working Capital?

(a) Purchase of stock-in-trade on credit:
(b) Purchases of a fixed asset on a credit of two months;
(c) Purchase of a fixed asset on long-term deferred payment basis;
(d) Sale of Stock-in-trade at profit for cash;
(e) Sale of a fixed asset (book value7,000) at a loss of 6,000.
(f) Cash collected from debtors.
(g) Cash paid to creditors
(h) Bills receivables endorsed to creditors:
(i) B/R endorsed to creditors, dishonoured;
(J) Issue of shares against a purchase of fixed asset;
(k) Issue of fully paid Bonus Shares;
(l) Payment of Final dividend already declared;
(m) Redemption of Debentures by converting them into equity shares;
(n) Writing off Bad Debts against a Provision for Doubtful Debts.

SOLUTION

STATEMENT SHOWING THE EFFECT OF VARIOUS TRANSACTIONS ON WORKING CAPITAL

Case	Effect on Working Capital	Reason
(a)	No Effect	Both the total current assets and all current liabilities are increased by the same amount
(b)	Outflow	Total Current liabilities are increased but total current assets remain unchanged.
(c)	No Effect	Neither the total current assets nor the total current liabilities are affected since both the total non-current assets and total non-current liabilities are increased by the same amount
(d)	Inflow	Total current assets are increased by the amount of profit but total current liabilities remain unchanged.
(e)	Inflow	Total current assets are increased by ₹ 1,000 but total current liabilities remain unchanged
(f)	No Effect	Neither the total current assets nor the total current liabilities are affected since there is only a conversion of one current asset into another current asset
(g)	No Effect	Both the total Current assets and total Current liabilities are decreased by the same amount.
(h)	No Effect	Both the total assets and total current liabilities are decreased by the same amount
(i)	No Effect	Both the total current assets and total current liabilities are increased by the same amount.
(j)	No Effect	Neither the total current assets nor the total current liabilities are affected since both the total non-current assets and total non-current liabilities are increased by the same amount
(k)	No Effect	Neither the total current assets nor the total current liabilities are affected since there is only a conversion of accumulated profits into share capital.
(l)	No Effect	Both the total current assets and total current liabilities are decreased by the same amount.
(m)	No Effect	Neither the total current assets nor the total current liabilities are affected since there is only a conversion of one non-current account into another non-current account.
(n)	No Effect	Neither the total current assets nor the total current liabilities are affected.

6.0 PERIOD OF FUNDS FLOW STATEMENT

To provide a comparative view of the movements of funds, this statement should be prepared and published for the period covered by the Profit and Loss Account and for the corresponding previous period.

7.0 OBJECTIVE OF FUNDS FLOW STATEMENT

The basic objective of funds flow statement is to indicate the sources from which the funds (i.e., working capital) were obtained and the specific uses to which such funds (i.e., working capital) were applied between the dates of two Balance Sheets.

8.0 DISTINCTION BETWEEN FUNDS FLOW STATEMENT AND POSITION STATEMENT

Funds Flow Statement and Position Statement can be distinguished as under:

Basis of Distinction	Position Statement	Funds Flow Statement
1. Meaning	It is a statement of assets an liabilities of an enterprise.	It is a statement of changes in assets and liabilities of an enterprise.
2. Objective	It is prepared to ascertain the financial position at a particular date	It is prepared to indicate how the financial position has changed during a specific period.
3 Legal obligation to prepare	Schedule VI to the Companies Act requires every company to prepare a Balance Sheet.	There exists no legal obligation to prepare Fund Flow Statement.
4. Prescribed Form	Company's Balance Sheet is required to be prepared in a prescribed form	Fund Flow Statement is not required to be prepared in a prescribed form.
5. Headings	The headings used in horizontal Balance Sheet are 'Assets' and 'Liabilities!.	The headings used in Funds Flow Statement are 'Sources of Funds' and 'Application of Funds'.
6. Treatment of retained earnings	Retained earnings are sources of funds. treated as	All earnings (whether retained or distributed) are treated as source of funds.
7. Basic data required for preparation	It is prepared with the help of ledger balances and additional information.	It is prepared with the help of two consecutive Balance Sheets and additional information.

9.0 DISTINCTION BETWEEN FUNDS FLOW STATEMENT AND INCOME STATEMENT

Funds Flow Statement and an Income Statement can be distinguished as follows:

Basis of Distinction	Income Statement	Funds Flow Statement
1. Meaning	It summarises he results of operating activities during a particular period.	It is a statemen of changes in assets and liabilities of an enterprise
2. Objective	It is prepared to ascertain how the profit was earned.	It is prepared to ascertain how the profit has been utilized.
3. Legal obligation to prepare	Schedule VI to the Companies Act requires every company to prepare an Income Statement.	There exists no legal obligation to prepare Fund Flow Statemen
4. Basic data required for preparation	It is prepared with the help of nominal accounts and additional information.	It is prepared with the help of two consecutive Balance Sheets and additional information
5. Treatment of difference	An excess of incomes Over expenses is known as net profit and vice versa is known as net loss	An excess of sources over applications is known as increase in working capital and vice versa is known as decrease in working capital.
6 Basis for one source or all Sources of funds	It provides a basis for the calculation of funds from operations which is one of the SOurces of funds.	It shows the funds from various sources (including funds from operations).

10.0 USES OF FUNDS FLOW STATEMENT

The various uses of funds flow statement are summarised as under:

(a) As a tool of historical analysis, it provides an answer to some of the important financial questions such as:

(i) How was it possible to distribute dividend in excess of current earnings or in the presence of a net loss for the period? (i.e., the firm might have raised funds from other sources also in addition to funds from operations)

(ii) Why dividends are not paid though company earned higher profits than previous year

(ii) Why has the net working capital decreased although the net income for the period has gone up? (i.e., the firm might have applied the funds more than the sources of funds). (i.e., the firm might have raised the funds more than the application of funds).

(v) What happened to the proceeds of the sale of plant and equipment? (e.g., the firm might have purchased some fixed assets or it might have redeemed the redeemable debentures or preference shares).

(vi) Why did the firm resort to long-term borrowings in spite of large profits?

(vii) Why did the firm issue new equity or preference shares?

(viii) How was the retirement of long-term debts or redemption of redeemable preference shares shares accomplished? (e.g., the firm might have issued new shares).

(b) As a tool of planning, the Projected Fund Flow Statement enables the management to plan its future investments, operating and financial activities such as the repayment of long-term loans and interest thereon, modernisation or expansion of plant, payment of cash dividend etc.

(c) Along with a Schedule of Changes in Components of Working Capital, the Funds Flow Statement helps in managing and utilizing the working capital. The management can know the adequacy or otherwise of the working capital and can plan for the effective use of surplus working capital or can make arrangement in case of inadequacy of working capital. Besides this, the management can identify the magnitude and directions of changes in various components of working capital and if there is any undesired situation such as heavy inventory accumulations, heavy funds locked up in receivables than normally required, the necessary corrective action may be taken so as to achieve the desired level thereof.

11.0 LIMITATIONS OF FUNDS FLOW STATEMENT

The major limitations of Funds Flow Statement are summarised below:

1.Ignores the Non-fund Transactions - It ignores the non-fund transactions. In other words, it does not take into consideration those transactions which do not affect the working capital e.g., issue of shares against the purchase of fixed assets, Conversion of debentures into equity shares.

2. Secondary Data Based Statement It is a secondary data-based statement. It merely rearranges the primary data already appearing in other statements, viz., Income Statement and Balance Sheet.

3. Historical Statement - It is basically historical in nature unless Projected Fund Flow Statements are prepared to plan for the future

12.0 PREPARATION OF FUNDS FLOW STATEMENT

The various practical steps involved in the preparation of Funds Flow Statement are given below:

PRACTICAL STEPS INVOLVED IN THE PREPARATION OF FUNDS FLOW STATEMENT

Step 1: Prepare Schedule of Changes in Components of Working Capital.

Step 2: Analyse the Changes in non-current assets and non-current liabilities to find out whether there is inflow or outflow of funds on account of these non-current items.

Step 3: Compute the Funds from Operations.

Step 4: Prepare Funds Flow Statement.

13.0 PREPARATION OF SCHEDULE OF CHANGES IN WORKING CAPITAL

PRACTICAL STEPS INVOLVED IN THE PREPARATION OF SCHEDULE OF CHANGES IN WORKING CAPITAL

The various practical steps involved in the preparation of Schedule of Changes in Working Capital

Step 1: Enter the names of Current Assets in 'Particular Column.'

Step 2: Enter the amounts of Current Assets for previous year in 'Previous Year Column

Step 3: Enter the amounts of Current Assets for Current Year in 'Current Year Column.

Step 4: Enter the increase in a Current Asset in 'Increase in Working Capital Column and decrease in a Current Asset in 'Decrease in Working Capital Column.

Step 5: Total 'Previous year Column' and 'Current Year Column' for Current Assets separately

Step 6: Enter the names of Current Liabilities in 'Particulars Column'

Step 7: Enter the amounts of Current Liabilities for previous year in 'Previous Year Column':

Step 8: Enter the amounts of Current Liabilities for current year in 'Current Year Column.

Step 9: Enter the increase in a Current Liability in 'Decrease in Working Capital column' and decrease in a Current Liability in Increase in Working Capital Column'.

Step 10: Total 'Previous Year Column' and "Current Year Column' for Current Liabilities separately.

Step 11: Calculate the Working Capital for previous year and current year by taking out the difference between Current Assets and Current Liabilities and enter in 'Previous Year Column' and Current Year Column' respectively.

Step 12: Calculate the difference between the Working Capital for current year and Working Capital for previous year and enter Increase in Working Capital in Previous Year Column' and 'Decrease in Working Capital Column and decrease in working capital in Current Year Column' and Increase in Working Capital Column

Step 13: Total 'Previous year Column, 'Current year Column', Increase in working Capital Column and 'Decrease in Working Capital Column.

PURPOSE OF SCHEDULE OF CHANGES IN WORKING CAPITAL

The purpose of preparing this statement is to arrive at a single figure of net increase or decrease in working capital at the end of the period as compared with that of the beginning.

INTERPRETATION OF CHANGE IN WORKING CAPITAL

An increase in working capital means applying long-term funds towards short-term needs and a decrease in working capital means applying short-term funds towards long-term needs.

FORMAT OF SCHEDULE OF CHANGES IN WORKING CAPITAL

A format of Schedule of Changes in Components of Working Capital is shown below:

SCHEDULE OF CHANGES IN WORKING CAPITAL

(1) Particulars	Absolute Amounts		Changes in Working	
	(2) Previous Year	(3) Current Year	(4) Increase	(5) Decrease
A. Current Assets:				
(a) Stock-in-trade	...	...	...	...
(b) Debtors (Gross)	...	...	...	...
(c) Cash Balance	....	...	...	...
(d) Bank Balance	...	...	...	...
(e) Bills Receivable	...	...	...	...
(f) Prepaid Expenses	...	...	...	...
(g) Accrued Incomes	...	...	...	...
(h) Short-term Loans and Advances	...	...	...	...
(i) Marketable Investments (Short-term)	...	...	...	...
B. Current Liabilities:				
(a) Creditors for goods	...	...	...	...
(b) Bills Payable	...	...	...	...
(c) Outstanding Expenses	...	...	...	...
(d) Bank Overdraft	...	...	...	...
(e) Unclaimed/Unpaid dividend	...	...	...	...
(f) Unaccrued Incomes	...	...	...	...
(g) Short-term Loans and Advances	...	...	...	...
(h) Provision for Doubtful Debt	...	...	...	...
(i) Provision for Discount on Debtors	...	...	...	...
(j) Dividend Payable	...	...	...	...
(k) Income Tax Payable	...	...	...	...
(0) Provision for Legal Damages	...	...	...	...
C. Working Capital (A-B)				
D. Increase In Working Capital				
Or				
Decrease in Working Capital				

Tutorial Notes

(i) If all the debtors are considered as good, the debtors will be shown in the schedule at gross figure and the Provision for doubtful debts will not appear in the schedule. However, Provision for Discount on debtors (if any) will appear in the schedule.

(ii) If Provision for Tax' is treated as a current item, then this item will appear as a Current liability in the 'Schedule'

(iii) The figures of Marketable Investments given in the Balance Sheets should not again be adjusted for purchase, sale or profit/loss on sale of such investments made during the accounting period

14.0 DISTINCTION BETWEEN FUNDS FLOW STATEMENT AND SCHEDULE OF CHANGES IN WORKING CAPITAL

Funds Flow Statement and Schedule of Changes in Components of Working Capital can be distinguished as follows

Basis of Distinction	Funds Flow Statement	Schedule of Changes in Working Capital
1. Meaning	It contains the sources of fund uses of funds and the change in net working capital.	It contains the various items ot current assets, current liabilities and changes therein, working capital for the previous year and for current year and the net increase/decrease in working capital as compared to previous year.
2. Objective	I Is prepared to ascertain how the Financial position has changed during a particular period.	It is prepared to ascertain how the various components of working capital have changed during a particular period.
3. Disclosure of Changes in Non Current items	changes in non-current items are shown in Funds Flow Statement.	Changes in non-Current items are not shown in this schedule
4. Disclosure of Funds from operations	Funds from operations are shown in Funds Flow Statement.	Funds from operations are no shown in this schedule.

ILLUSTRATION 2

From the following Balance Sheets of TULSIAN Ltd., prepare Schedule of Changes in Working Capital:

Particulars	31.3.2015 ₹	31.3.2016 ₹
Equity Share Capita	3,00,000	4,00,000
Pref. Share Capital	1,50,000	1,00,000
General Reserve	40,000	70,000
Securities Premium	5,000	15,000
Profit & Loss A/c	23,000	54,000
Debentures	3,20,000	4,20,000
Creditors for Goods	30,000	50,000
Bills Payables	20,000	30,000
Commission received-in-advance	3,000	2,000
Outstanding Expenses	2,000	1,000
Bank Overdraft (Canara Bank)	19,000	14,000
Provision for Taxation	38,000	50,000
Proposed Dividend	42,000	50,000
Provision for Doubtful Debt	4,000	5,000
Provision for Legal Damages	2,000	-
Provision. for Discount on Debtors	1,000	2,000
Goodwill	1,15,000	90,000

Patents	90,000	1,15,000
Land	1,00,000	90,000
Plant & Machinery (Net)	1,80,000	1,70,000
Furniture	10,000	2,25,000
Investments	2,00,000	1,80,000
Stock	77,000	1,09,000
Debtors	1,60,000	2,00,000
Bills Receivable	20,000	30,000
Marketable Securities	3,000	2,000
Accrued Interest	1,000	3,000
Cash in hand	5,000	4,000
Cash at Dena Bank	10,000	6,000
Prepaid Expenses	10,000	8,000
Preliminary Expenses	5,000	3,000
Underwriting Comm.	3,000	8,000
Discount on Issue of Debentures	10,000	20,000

SOLUTION

SCHEDULE OF CHANGES IN WORKING CAPITAL

Particulars	31st March		Changes in Working Capital	
	2015	2016	Increase	Decrease
A. Current Assets:				
Stock	77,000	1,09,000	32,000	
Debtors	1,60,000	2,00,000	40,000	
Bills Receivables	20,000	30,000	10,000	
Marketable Securities	3,000	2,000		1,000
Accrued Interest	1,000	3,000	2,000	
Cash-in-hand	5,000	4,000		1,000
Cash at Dena Bank	10,000	6,000		4,000
Prepaid Expenses	10,000	8,000		2,000
	2,86,000	3,62,000		
B. Current Liabilities:				
Creditors for Goods	30,000	50,000		20,000
Bills Payables	20,000	30,000		10,000
Outstanding Expenses	2,000	1,000	1,000	
Commission received-in-advance	3,000	2,000	1,000	
Bank O/D (Canara Bank)	19,000	14,000	5,000	
Provision for Doubtful Debts	4,000	5,000		1,000
Provision for Legal Damages	2,000	-	2,000	
Provision for Discount on Debtors	1,000	2,000		1,000
	81,000	1,04,000		
C. Working Capital [A - B]	2,05,000	2,58,000		
D Increase in Working Capital	53,000			53,000
	2,58,000	2,58,000	93,000	93,000

ILLUSTRATION 3

Assuming that all debtors are good in lustration 3. Prepare Schedule of Changes in Working Capital.

SOLUTION

SCHEDULE OF CHANGES IN WORKING CAPITAL

Particulars	31st March		Changes n Working Capital	
	2015	2016	Increase	Decrease
A. Current Assets:				
Stock	77,000	1,09,000	32,000	
Debtors	1,60,000	2,00,000	40,000	
Bills Receivables	20,000	30,000	10,000	
Marketable Securities	3,000	2,000		1,000
Accrued Interest	1,000	3,000	2,000	
Cash-in-hand	5,000	4,000		1,000
Cash at Dena Bank	10,000	6,000		4,000
Prepaid Expenses	10,000	8,000		2,000
	2,86,000	3,62,000		
B. Current Liabilities:				
Creditors for goods	30,000	50,000		20,000
Bills Payables	20,000	30,000		10,000
Outstanding Expenses	2,000	1,000	1,000	
Commission received-in-advance	3,000	2,000	1,000	
Bank O/D (Canara Bank)	19,000	14,000	5,000	
Provision for Discount on Debtors	1,000	2,000		1,000
Provision for Legal Damages	2,000	-	2,000	
	77,000	99,000		
C. Working Capiltal (A -B]	2,09,000	2,63,000		
D. Increase in Working Capital	54,000			54,000
	2,63,000	2,63,000	93,000	93,000

Note: Provision for Doubtful Debt has not been shown in the Schedule because it is basically Reserve for Doubtful Debts.' Since all debtors have been considered as good, there is no need for creating any 'Provision for Doubtful Such excess provision is treated as Reserve.

15.0 ANALYSIS OF THE CHANGES IN NON-CURRENT ITEMS

To identify whether there is an inflow or outflow of funds on account of non-Current items, the account of all non-current items (like Fixed Assets, Investments (Long-term), Goodwill, Patents, Trademarked Preliminary Expenses, Underwriting Commission, Discount on issue of Shares/Debentures, Eolith Share Capital, Preference Share Capital, Debentures, Long-term Loans) should be prepared after taking into consideration the following:

(a) Opening Balance (given in Opening Balance Sheet)
(b) Closing Balance (given in Closing Balance Sheet)
(c) Relevant Additional Information (if any given)

The following table summarises the meaning, accounting treatment and reasoning for treatment of changes in various non-current items in the absence of any additional information:

Non-current Items	Meaning	Treatment	Reasoning for Treatment
I. Intangible Non Current Assets (e.g. Goodwill Patents, Trademarks, Copy-rights) (a) Increase (b) Decrease	It represents the amount of purchase. It represents the amount amor- tied/written off.	Show as an application of Fund in Funds Flow Statement. Add back to the current years' profits to find out funds from operations.	It involves an outflow of fund. It merely represents a book entry and does not involve any outflow of fund.
ii. Tangible Non depreciable Non-current Assets (e.g. Investments) (a) Increase (b) Decrease	It represents the amount of purchase. It represents the amount of sale proceeds.	Show as an application of Funds in Funds Flow Statement. Show as a Source of Funds in Fund Flow Statement.	It involves an outflow of fund. It involves an inflow of fund
ii. Tangible Depreciable Non-current 77,000 99,000 Assets (e.g. Land and Building, Plant & Machinery) (a) Increase (b) Decrease	It represents the amount of purchase. It represents the amount of depreciation provided during the year.	Show as an Application of Fund in Funds Flow Statement. Add back to the current years' profits to find out funds from operations	It involves an outflow of Fund It merely represents a book entry and does not involve .any outflow of fund.
IV. Fictitious Assets other than Discount (e.g. Preliminary Expenses, Underwriting Commission) (a) Increase (b) Decrease	It represents the payment. It represents the amount written off	Show as an Application of Funds in Funds Flow Statement. Add back to the current years' profits to find out funds from operations.	It involves an outflow of fund. It merely represents a book entry and does not involve any outflow of fund.
V. Discount allowed on Issue of Shares Debentures (a) Increase	It represents the amount of discount allowed on issue of shares/ debentures.	Deduct from the in crease in Share Capital/Debenture to ascertain the. Net amount of issue (which	It represents less in-flow off funds on issue of shares/debentures to the extent of dis-count

(b) Decrease	It represents the amount written off	is shown as a Funds Flow Statement) Add back to the current years' profits to find out funds from operations.	allowed, source of funds in It merely represents a book entry and does not involve any outflow of funds.
VI. Share Capital, Debentures, Long-term Loans (a) Increase	It represents an issue of new shares/ debentures or raising a fresh loan.	Show as a source of funds in Funds Flow Statement. Note: While calculating the amount of source, premium (if any received) should be added to or discount (if any allowed) should be deducted from the amount of increase.	It involves an inflow of funds.
(b) Decrease	It represents the re-payment of Redeemable Pref. Shares/ Debentures/Long term Loan or buy back of shares.	Show as an application of funds in Funds Flow Statement. Note: While calculating the amount of application, premium on redemption (if any paid) should be added to the amount of decrease.	It involves an outflow of fund.
VII. General Reserve account (a) Increase	It represents transfer of profits from P & L A/c.	Add back to the current years' profits to find out funds from operations	It merely represents a book entry and does not involve any flow of funds.
(b) Decrease	It represents transfer of profit from General Reserve to P& L Alc.	Deduct from the current years' profits to find Out funds from operations.	It merely represents a book entry and does not involve any flow of funds
VIII. Securities Premium Alc (a) Increase	It represents the amount of premium received on issue of securities.	Add to the increase insecurities to as certain the total amount of issue (which is shown as a received. source of funds in Funds Flow Statement).	It represents more in-flow off funds on issue of securities to the extent of premium
(b) Decrease	It represents the amount of premium utilized for: () Writing off prelim-	No. treatment is re quired but it may be noted that an amount of	

	nary term Loan or buy-application, premium on back of shares. expenses, un-der writing commission, Discount on issue of shares/ debentures or (ü) Providing for pre-mum on redemption of redee- mable |(if any allowed) should preference be deducted from the amount of increase. shares/ debentures	decrease in prelim nary exp./ underwriting comm./Discount al lowed, to the extent of decrease in securities premium, shall not be added back to current No treatment is re quired but it may be noted that premium paid on redemption to the extent of decrease in securities premium, shall not be added back to current years profits. to find Out funds from any flow of funds. operations. years' profits	
Ix. Proposed Dividend (a) Previous year's	It represents the amount of final dividend declared for the previous year but paid during the current year.	Show as an Application of Funds in Funds Flow Statement.	It involves an outflow of funds.
(b) Current year's	It represents the amount 10. of dividend proposed by the Board of Directors for the current year	Add back to the current year's profits to find out funds from operation	It is merely a book entry and does not in-volve out flow of funds.
X. Increase in	It represents transfer of Profits from P&L Alc.	Treatment is similar to that of General Reserve (as discussed earlier in tem VI)	Increase in Provision when all debtors are good, is treated as Reserve.

CHAPTER 5A- WORKING CAPITAL MANAGEMENT

INTRODUCTION TO WORKING CAPITAL

The financial management of business involves the management of long-term assets, long-term capital, and the management of short-term assets and liabilities. Management of working capital concerns with the management of assets such as cash, marketable securities, receivables, inventories and other current assets also liabilities include payables and accruals.

Working capital management is essentially the management of current assets and current liabilities in an organisation. It is concerned with the problems that has been arising in attempting to manage the current assets, the current liabilities and inter relationship that exists between them. The role of the working capital management is to manage the firm's current assets and liabilities in such a way that a satisfactory level of working capital is maintained.

Working Capital - Meaning & Definition

The term working capital also called gross working capital refers to the firm's aggregate of current assets. Current assets are those assets which can be convertible into cash within an accounting period, generally a year. Therefore, they are cash or mere cash resources of a business concern.

(a) "Working capital means the funds available for day-to-day operations of an enterprise. It also represents the excess of current assets over current liabilities including short-term loans".
— Accounting Standards Board, The Institute of Chartered Accountants of India.

(b) "Working capital is that portion of a firm's current assets which is financed by short-term funds."— Gitman, L.J.

Concept of Working Capital

Working capital has two concepts:
(i) Gross working capital and
(ii) Net working capital
Gross working capital refers to the total of the current assets.

Net working capital refers to the excess of the current assets over current liabilities. Net working capital (NWC) can alternatively define as the part of the current assets which are financed with the long-term funds. Since, current liabilities represent sources of short-term funds, as long as the current assets exceeds the current liabilities, the excess must be financed with the long-term funds.

Though both concepts are important for managing it. Gross working capital is more helpful to the management in managing each individual current assets for day-to-day operations. But, in the long run, it is the net working capital that is useful for the purpose.

When we want to know the sources from which funds are obtained, it is not working capital that is more important and should be given greater emphasis. The definition given by the Accountants, U.S.A., will give clear view of working capital which is given below:

"Working capital sometimes called net working capital, is represented by excess of current assets over current liabilities and identifies the relatively liquid portion of total enterprise capital which constitutes a margin of better for maturing obligations within the ordinary operation cycle of the business."

Each concern has its own limitations and constraints within which it has to decide whether it should give importance to gross or not working capital.

Concept of Zero Working

The zero-working capital (ZWC) differs from the commonly used working capital i.e., current assets minus current liabilities.
The zero-working capital is inventory plus receivables minus payables.

ZWC = Inventories (+) Receivables (-) Payables.

The rationale is that inventories and receivables are the major constituents of current assets which affect sales. Further, suppliers finance inventories through account payable.

Current Assets

An asset is classified as current asset when:
(a) it is expected to be realised or intends to be sold or consumed in normal operating cycle of the organisation;
(b) the asset is held primarily for the purpose of trading;
(c) it is expected to be realised within twelve months after the reporting period;

(d) it is non- restricted cash or cash equivalent.

Generally current assets of an organisation, for the purpose of working capital management can be classified into the following main heads:

(i) Inventory (raw material, work-in-process and finished goods)

(ii) Receivables (trade receivables and bills receivables)

(iii) Cash or cash equivalents (short-term marketable securities)

(iv) Prepaid expenses.

Current Liabilities

A liability is classified as current liability when:

(a) it is expected to be settled in normal operating cycle of the organisation;

(b) the liability is held primarily for the purpose of trading;

(c) it is expected to be settled within twelve months after the reporting period.

Generally current liabilities of an organisation, for the purpose of working capital management can be classified into the following main heads:

(i) Payables (trade payables and bills receivables)

(ii) Outstanding payments (wages and salary etc.)

Planning of Working Capital

Working capital of a business should be commensurate with its needs. Too high or too low working capital of a business or two extremes of working capital are equally dangerous to the existence of the business enterprise itself.

High amount of working capital, though increases its liquidity position but reduces its profitability and on the other hand too low working capital though increases its profitability reduces its liquidity. Both such extreme situations may cause business concerns to shut down.

Danger of too high amount of Working Capital

(a) It results in unnecessary accumulation of inventories and gives chance to inventory mishandling, wastage, pilferage, theft, etc., and losses increase.

(b) Excess working capital means idle funds which earns no profits for the business.

(c) It shows a defective credit policy of the company resulting in higher incidence of bad debts and adversely affects Profitability.

(d) It results in overall inefficiency.

Problems of inadequate or low amount of Working Capital

(a) It becomes difficult to implement operating plans and achieve the firm's profit target.

(b) It stagnates growth and it will become difficult to the firm to undertake profitable ventures for non-availability of working capital funds.

(c) It may not be in a position to meet its day-to-day current obligations and results in operational inefficiencies.

(d) The return on investment falls due to under-utilisation of fixed assets and other capacities of the business concern.

(e) Credit facilities in the market will be lost due to faulty working capital.

(f) The reputation and goodwill of the firm will also be impaired considerably.

Determinants of Working

The size or magnitude and amount of working capital will not be uniform for all organisations. It differs from one type of organisation to the other type of organisation. Depending upon various conditions and environmental factors of each and every organisation. There are many factors that determine the size of working capital. However, there are some factors, which are common to the most of the business concerns. Such factors are enumerated below:

1. Nature and Size of the Business: A company's working capital requirements depends on the activities it carried on and its size too. For instance, public utility organisation or service organisation where its activities are of mere service nature, does not require high amount of working capital, as it has no need of maintaining any stocks of inventories. In case of trading organisation, the magnitude of working capital is high as it requires to maintain certain stocks of goods as also some credit to debtors. Further, if we go to manufacturing organisation the cycle period of working capital is high because the funds are to be invested in each and every type of inventory forms of raw-material, work-in-progress, finished goods as also debtors. Industrial units too require a large amount of working capital.

2. Production Policies: These policies will have a great significance in determining the size of the working capital. Where production policies are designed in such a way that uniform production is carried on throughout the accounting period, such concern requires a uniform and lesser amount of working capital. On the other hand, the concerns with production policies according to the needs of the customers will be peak at sometimes and require high amount of working capital. In seasonal industries too, where production policies are laid down tightly in the business season requires a high amount of working capital.

3. Process of Manufacture: If the manufacturing process of a particular industry is longer due to its complex nature, more working capital is required to finance that process, because, longer the period of manufacture, the larger the inventory tied up in the process and naturally requires a high amount of working capital.

4. Growth and Expansion of Business: A business concern at status requires a uniform amount of working capital as against the concerns which are growing and expanding. It is the tendency of any business organisation to grow further and further till its saturation point, if any. Such growth may be within the existing units by increased activities. Similarly, business concerns will expand their organisation by establishing new units. In both the cases, the need for working capital requirement increases as the organisation increases.

5. Fluctuations in the Trade Cycle: Business activities vary according to the general fluctuations in the world. There are four stages in a trade cycle which affects the activities of any business concern. Accordingly, the requirements of working capital are bound to change. When conditions of boom prevail, it is the policy of any prudent management to build or pile up large stock of inventories of various forms to take the advantage of the lower prices. Such fluctuations cause a business concern to demand for more amount of working capital.

The other phase of trade cycle i.e., depression i.e., low or absence of business activities cause business concerns to demand for more working capital. In condition of depression, the products produced are not sold due to fall in demand, lack of purchasing power of the people. As a result of which entire production obtained was not sold in the market and high inventories are piled up. Therefore, there arises the need for heavy amount of working capital. Thus, the two extreme stages of trade cycles make the business concerns to demand for more working capital. In the former case due to acts and policies of management and in the later case due to natural phenomena of trade cycle.

6. Terms and Conditions of Purchases and Sales: A business concern which allows more credit to its customers and buys its supplies for cash requires more amount of working capital. On the other hand, business concerns which do not allow more credit period to its customers and seek better credit facilities for their supplies naturally require lesser amount of working capital.

7. Dividend Policy: A consistent dividend policy may affect the size of working capital. When some amount of working capital is financed out of the internal generation of funds such affect will be there. The relationship between dividend policy and working capital is well established and very few companies declare dividend without giving due consideration to its effects on cash and their needs for cash.

If the dividend is to be declared in cash, such outflow reduces working capital and therefore, most of the business concerns declare dividend now-a-days in the form of bonus shares as such retain their cash. A shortage of working capital acts as powerful reason for reducing or skipping cash dividend.

8. Price Level Changes: The changes in prices make the functions of a finance manager difficult. The anticipations of future price level changes are necessary to avoid their affects on working capital of the firm. Generally, rising price level will require a company to demand for more amount of working capital, because the same level of current assets requires higher amount of working capital due to increased prices.

9. Operating Efficiency: The operating efficiency of a firm relates to its optimum utilisation of resources available whether in any form of factor of production, say, capital, labour, material, machines etc.; If a company is able to effectively operate its costs, its operating cycle is accelerated and requires relatively lessor amount of working capital. On the other hand, if a firm is not able to utilise its resources properly will have slow operating cycle and naturally requires higher amount of working capital.

10. Percentage of Profits and Appropriation out of Profits: The capacity of all the firms will not be same in generating their profits. It is natural that some firms enjoy a dominant and monopoly positions due to the quality of its products, reputations, goodwill etc. (for example Colgate Tooth Paste, Bata Chapels etc.,) and some companies will not have such position due to poor quality and other inherent hazards.

The company policy of retaining or distribution of profits will also affect the working capital.

More appropriation out of profits than distribution of profit necessarily reduces the requirements of working capital.

11. Other Factors: Apart from the above general considerations, there may be some factors responsible for determination of working capital which are inherent to the type of business. Some of such factors may be as follows:

(a) General co-ordination and control of the activities in the organisation.
(b) Absence of specialisation of products and their advantages.
(c) Market facilities.
(d) Means of transport and communication system.
(e) Sector in which the firm works i.e., private or public sector etc.
(f) Government policy as regard to: (i) Imports and Exports
(g) Tax considerations.
(h) Availability of labour and its organisation.
(i) Area in which it is situated such as backward, rural sub-urban, etc.,

Types of Working Capital on the basis of Nature

There are two types of working capital, the distinction of which made keeping in view the nature of such funds in a business concern, which are as follows:

(a) Rigid, fixed, regular or permanent working capital; and

(b) Variable, seasonal, temporary or flexible working capital.

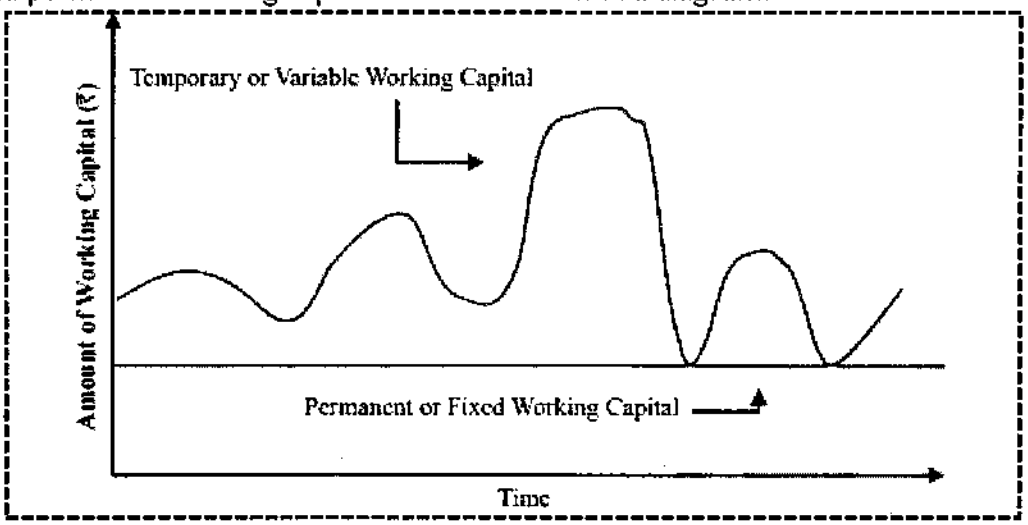
Every business concern has to maintain certain minimum amount of current assets at all times to carry on its activities efficiently and effectively. It is indispensable for any business concern to keep some material as stocks, some in the shape of work-in-progress and some in the form of finished goods.

Similarly, it has to maintain certain amount of cash to meet its day-to-day requirements. Without such minimum amount, it cannot sustain and carry on its activities. Therefore, some amount of working capital i.e., current assets is permanent in the business without any fluctuations like fixed assets and such amount is called working capital.

To say precisely, permanent working capital is the irreducible minimum amount of working capital necessary to carry on its activities without any interruptions. It is that minimum amount necessary to outlays its fixed assets effectively.

On the other hand, temporary working capital is that amount of current assets which is not permanent and fluctuating from time to time depending upon the company's requirements and it is generally financed out of short-term funds. It may also high due to seasonal character of the industry as such it is also called seasonal working capital.

Temporary and permanent working capital are shown below in a diagram.

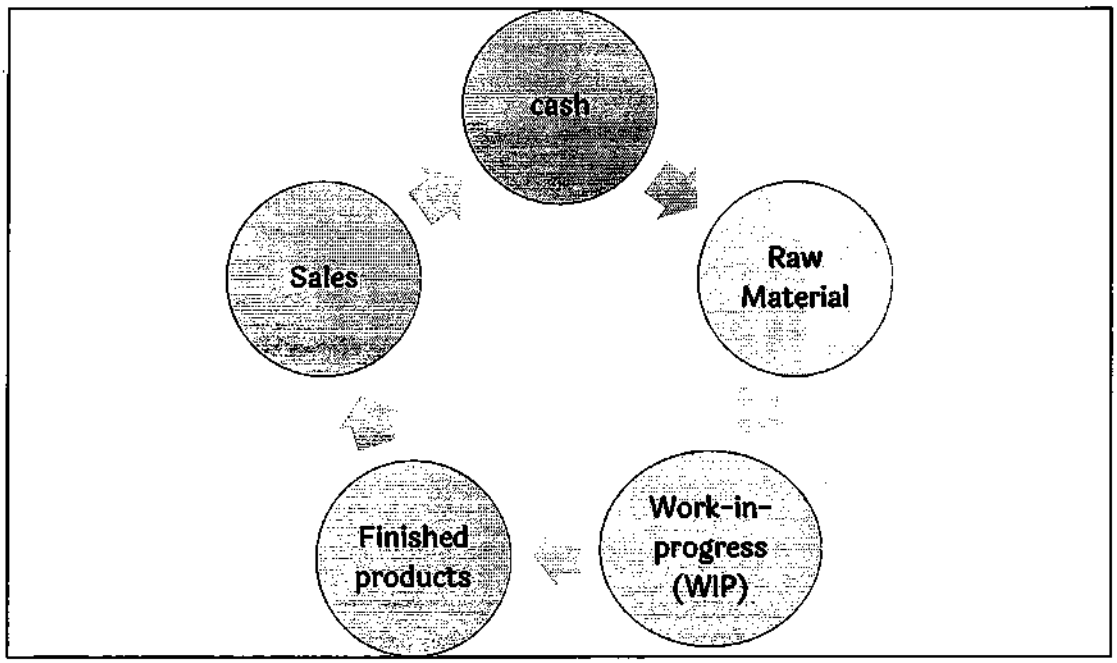


Working Capital Cycle and Cash Cycle

Working Capital Cycle or Operating Cycle are synonymous terms in the context of management of working capital. Any business concern, whether it is of financial nature, trade organisation or a manufacturing organisation needs certain time to net fruits of the efforts. That is, by investment of cash, producing or doing something for some time will fetch profit. But soon after the investment of cash, it cannot get that profit by way of cash again immediately. It takes time to do so. The time required to take from investment of cash in some assets and conversion of it again into cash termed as operating or working capital cycle. Here the cycle refers to the time period.

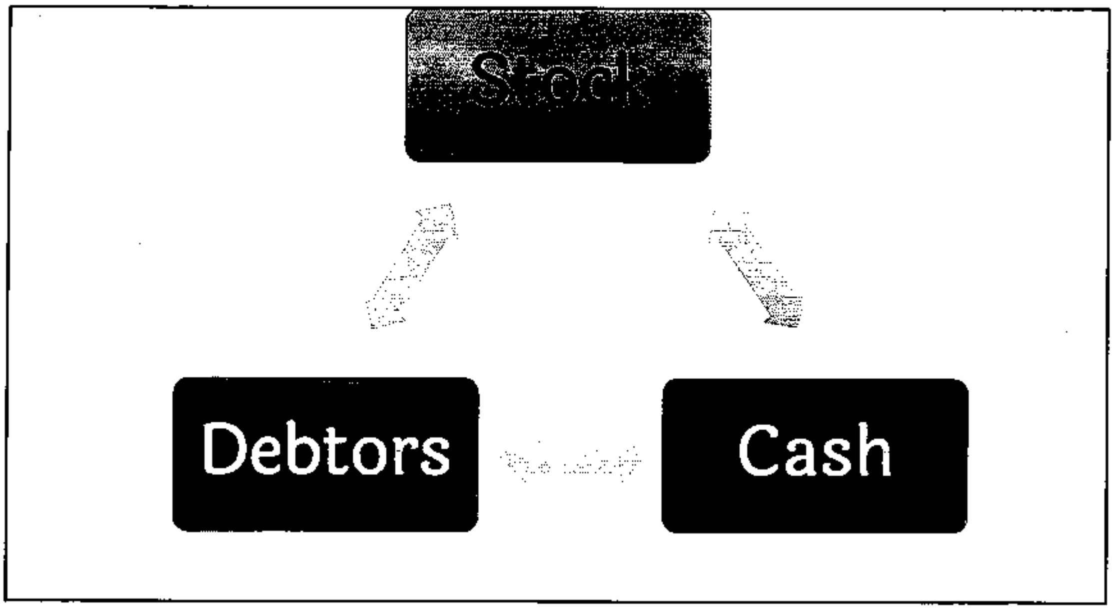
The following figures has shown the working capital cycle and case cycle of different types of organisations.

In case of manufacturing concerns, the operating cycle will be Raw materials → WIP → Finished goods → Sales → Debtors & Bills Receivable → Cash.



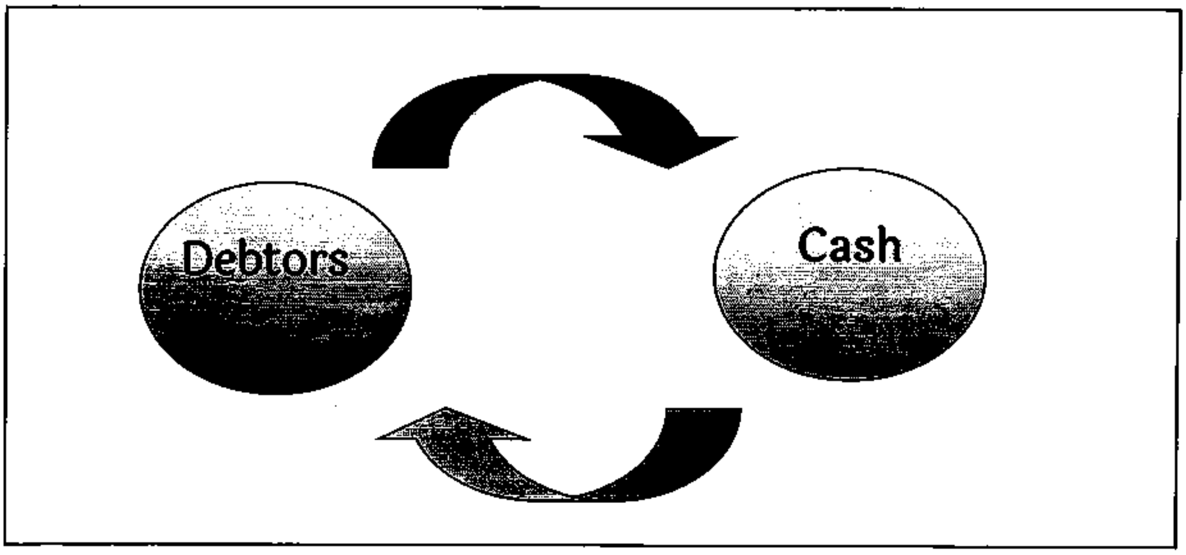
The operating cycle in manufacturing organisation

In case of trading concerns, the operating cycle will be: Cash → Stock → Debtors → Cash.



Operating cycle in trading organisation

In case of financial concerns, the operating cycle will be: Cash → Debtors → Cash only.



Operating cycle in financial organisation

The operating cycle of a manufacturing company involves three phases:

Phase 1: Acquisition of resources such as raw material, labour, power and fuel, etc.

Phase 2: Manufacture of the product which includes conversion of raw material into work-in-progress into finished goods.

Phase 3: Sale of the product either for cash or on credit. Credit sales create accounts receivable for collection.

The length of the operating cycle of a manufacturing firm is the sum of: (i) inventory conversion period (ICP) and (ii) debtors (receivables) conversion period (DCP).

The inventory conversion period is the total time needed for producing and selling the product. Typically, it includes: (a) raw material conversion period (RMCP), (b) work-in-process conversion period (WIPCP), and (c) finished goods conversion period (FGCP). The debtors' conversion period is the time required to collect the outstanding amount from the customers. The total of inventory conversion period and debtors' conversion period is referred to as gross operating cycle (GOC).

Gross operating cycle = Inventory conversion period (ICP) + Debtors conversion period (DCP)

GOC = I CP + DCP

<u>Net operating cycle (NOC)</u> is the difference between gross operating cycle and payables deferral period.
Net operating cycle = Gross operating cycle (GOC) – Creditors deferral period (CDP).

NOC = GOC – CDP

Net operating cycle is also referred to as cash conversion cycle.

<u>Inventory Conversion Period</u>

The inventory conversion (ICP) is the sum of raw material conversion period (RMCP), work-in-process conversion period (WIPCP) and finished goods conversion period (FGCP):

ICP = RMCP + WIPCP + FGCP

<u>Raw Material Conversion Period (RMCP)</u>

The raw material conversion period (RMCP) is the average time period taken to convert material in to work-in-process. RMCP depends on: (a) raw material consumption per day, and (b) raw material inventory.

$$RMCP = \frac{\text{Raw material inventory}}{[\text{Raw material consumption}/360]}$$

<u>Work-in-process Conversion Period (WIPCP)</u>

Work-in-process conversion period (WIPCP) is the average time taken to complete the semi-finished work or work-in-process.

$$WIPCP = \frac{\text{Work – in progress Inventory}}{[\text{Cost of Production} / 360]}$$

Finished Goods Conversion Period (FGCP)

Finished goods conversion period (FGCP) is the average time taken to sell the finished goods.

$$\text{WIPCP} = \frac{\text{Finished Goods inventory}}{\text{[Cost of Production / 360]}}$$

Debtors (Receivables) Conversion Period (DCP)

Debtors' conversion period (DCP) is the average time taken to convert debtors into cash. DCP represents the average collection period.

$$\text{WIPCP} = \frac{\text{Finished Goods inventory}}{\text{[Cost of Production / 360]}}$$

Creditors (Payables) Deferral Period (CDP)

Creditors (payables) deferral period (CDP) is the average time taken by the firm in paying its suppliers (creditors).

$$\text{DCP} = \frac{\text{Receivables}}{\text{[Credit sales / 360]}} = \frac{\text{Debtors} \times 360}{\text{Credit sales}}$$

It is obvious from the above that the time gap between the sales and their actual realisation of cash is technically termed as Operating Cycle or Working Capital Cycle.

The period of working capital cycle may differ from one business enterprise to the other depending upon the nature of the enterprise and its activities. It means the pattern of working capital cycle do change according to its activities.

Important Note: Some authors consider 12 months = 360 days

Estimation of Working Capital Requirements

In order to calculate the working capital needs, holding period of various types of inventories, the credit collection period and the credit payment periods are required. Working capital also depends on the budgeted level of activity in terms of production/sales. The calculation of WC is based on the assumption that the production/sales is carried on evenly throughout the year and all costs accrue similarly. The steps involved in estimating the different items of CA and CL are as follows:

Estimation of Current Assets

(i) Raw Materials Inventory

The investment in raw materials inventory is estimated on the basis of following equation.

$$\frac{\text{Budgeted production} \times \text{Cost of raw materials per unit} \times \text{Average inventory holding period}}{\text{12 months/365 days}}$$

(ii) Work-in- Progress (WIP) Inventory

The relevant costs to determine work-in-process inventory are the proportionate share of cost of raw materials and conversion costs such as labour and manufacturing overhead costs excluding depreciation. Depreciation is excluded as it does not involve any cash expenditure.

$$\frac{\text{Budgeted production} \times \text{Estimated work-in-progress cost per unit} \times \text{Average time span of work-in-progress}}{\text{12 months/365 days}}$$

(iii) Finished Goods Inventory

Working capital required to finance the finished goods inventory is given below:

$$\frac{\text{Budgeted production} \times \text{Cost of finished product per unit (excluding depreciation)} \times \text{Finished good holding period}}{\text{12 months/365 days}}$$

(iv) Debtors

The working capital included in debtors should be estimated in relation to total cost price (excluding depreciation)

$$\frac{\text{Budgeted productions} \times \text{Cost of finished product per unit (excluding depreciation)} \times \text{Finished good holding period}}{\text{12 months/365 days}}$$

(v) Cash and Bank Balances

Apart from working capital needs for financing inventories and debtors, firms also find it useful to have some minimum cash balances with them. It is difficult to lay down the exact procedure of determining such an amount. This would primarily be based on the motives for holding cash balances of the business firm, attitude of management toward risk, the access to the borrowing sources in times of need and past experience, and so on.

Estimation of Current Liabilities

The working capital needs of business firms are lower to the that extent such needs are met through the current liabilities (other than bank credit) arising in the ordinary course of business. The important current liabilities (CL), in this context are, trade creditors, wages and overheads. Estimation of these liabilities are mentioned below:

(i) Trade Creditors

$$\frac{\text{Budgeted yearly productions} \times \text{Raw material cost per unit} \times \text{Credit period allowed by creditors}}{\text{12 months/365 days}}$$

(ii) Direct Wages

$$\frac{\text{Budgeted yearly productions} \times \text{Direct labour cost per unit} \times \text{Average time-lag in payment of wages}}{\text{12 months/365 days}}$$

(iii) Overheads

$$\frac{\text{Budgeted yearly production} \times \text{Overhead cost per unit} \times \text{Average time-lag in payment of overheads}}{\text{12 months/365 days}}$$

(iv) Goods and Services Tax (GST)

$$\frac{\text{Budgeted yearly production} \times \text{GST per unit} \times \text{Average time-lag in payment of GST}}{\text{12 months/365 days}}$$

Working capital can be estimated by using the following format.

Determination of Working Capital

Particulars	Amount (₹)
A. Estimation of Current Assets	
(i) Minimum desired cash and bank balances	xxx
(ii) Inventories	
Raw materials	xxx
Work-in-Progress	xxx
Finished Goods	xxx
(iii) Debtors*	xxx
Total Current Assets	xxx
B. Estimation of Current Liabilities	
(i) Creditors**	xxx
(ii) Wages	xxx
(iii) Overheads	xxx
(iv) Goods and Services Tax (GST)	xxx
Total Current Liabilities	xxx
C. Net Working Capital (A – B)	xxx
Add: Margin for contingency	xxx
D. Net Working Capital Required	xxx
*If payment is received in advance, the item would be listed in Current Liabilities.	xxx

**If advance payment is to be made to creditors, the item would appear under Current Assets. The same would be the treatment for advance payment of wages and overheads.	xxx

Question 1

PQR Ltd. produces a product with the following revenue cost structure:

Particulars	Cost per unit (₹)
Raw materials	115
Direct labour	80
Overheads	37
Total Cost	232
Profit	58
Selling Price	290

The following additional information is available:

(a) Average raw materials in stock: One month.

(b) Average materials in process: Half-a-month, Raw material 100%, Direct labour 50%, overheads 50% complete.

(c) Average finished goods in stock: One month.

(d) Credit allowed by suppliers: One month

(e) Credit allowed to debtors: Two months.

(f) Time lag in payment of wages: Half a month.

(g) Overheads: One month

(h) One-fourth of sales are on cash basis.

(i) Cash balance is expected to be ₹ 1,60,000.

You are required to prepare a statement showing the working capital needed to finance a level of activity of 60,000 units of annual output. The production is carried throughout the year on even basis and wages and overheads accrue uniformly. Debtors are to taken at cost.

Question 2

A and B Ltd is desired to purchase a business and has consulted you, and one point on which you are asked to advise them, is the average amount of working capital which will be required in the first year's working.

You are given the following estimates and instructed to add 12 % to your computed figure to allow for contingencies.

Particulars	Amount for the year (₹)
(i) Average amount blocked up for stocks:	
Stocks of finished product	6,000
Stock of stores and materials	7,000
(ii) Average credit given:	
Inland sales: 6 weeks' credit	3,12,000
Export sales: 1.5 weeks' credit	78,000
(iii) Average time lag in payment of wages and other outgoings	
Wages: 1.5 weeks	2,60,000
Stock and materials: 1.5 months	52,000
Rent and royalties: 6 months	12,000
Clerical staff: ½ month	62,400
Manager: ½ month	4,800
Miscellaneous expenses: 1.5 months	52,000
(iv) Payment in advance:	
Sundry expenses (paid quarterly in advance)	8000
Undrawn profits on an average throughout the year	10000

Question 3

A company has prepared its annual budget, relevant details of which are reproduced below:

(a) Sales ₹ 46.80 lakhs (25% cash sales and balance on credit)	78,000 units
(b) Raw material cost	60% of sales value
(c) Labour cost	₹ 6 per unit
(d) Variable overheads	₹ 1 per unit
(e) Fixed overheads	₹ 5 lakhs (including ₹ 1,10,000 as depreciation)

Budgeted stock levels:	
Raw materials	3 weeks
Work-in-progress	1 week (Material 100%, Labour & Overheads 50%)
Finished goods	2 weeks
Debtors are allowed credit	4 weeks
Creditors allow credit	4 weeks
Wages are paid by-weekly, i.e., by the 3rd week and by the 5th week for the 1st & 2nd weeks and the 3rd & 4th weeks respectively	
Lag in payment of overheads	2 weeks
Cash-in-hand required	₹ 50,000

Prepare the working capital budget for a year for the company, making whatever assumptions that you may find necessary.

Question 4 (Homework sum)

A company plans to manufacture and sell 400 units of a domestic appliance per month at a price of ₹ 600 each. The ratio of costs to selling price are as follows:

Particulars	(% of selling price)
Raw materials	30%
Packing materials	10%
Direct labour	15%
Direct expense	5%

Fixed overheads are estimated at ₹ 4,32,000 per annum.

The following norms are maintained for inventory management:

Raw materials 30 days

Packing materials 15 days

Finished goods 200 units

Work-in-progress 7 days

Other assumptions are given below:

(a) Credit sales represent 80% of total sales and the dealers enjoy 30 working days credit. Balance 20% are cash sales.

(b) Creditors allow 21 working days credit for payment.

(c) Lag in payment of overheads and expenses is 15 working days.

(d) Cash requirements to be 12% of net working capital.

(e) Working days in a year are taken as 300 for budgeting purpose.

Prepare a Working Capital requirement forecast for the budget year.

Question 5 (Homework sum)

(a) From the following details, prepare an estimate of the requirement of Working Capital:

Production	60,000 units
Selling price per unit	₹5
Raw material	60% of selling price
Direct wages	10% of selling price
Overheads	20% of selling price
Materials in hand	2 months requirement
Production Time	1 month
Finished goods in Stores	3 months
Credit for Material	2 months
Credit allowed to Customers	3 months
Average cash balance	₹ 20,000

Wages and overheads are paid at the beginning of the month following. In production, all the required materials are charged in the initial stage and wages and overheads accrue evenly.

(b) What is the effect of double shift working on the requirement of working capital?

Question 6 (Homework sum)

Solaris Ltd. sells goods in domestic market at a gross profit of 25%, not counting on depreciation as a part of the 'cost of goods sold'. Its estimates for next year are as follows:

Sales - Home at 1 month's credit	1,200
Exports at 3 months' credit, selling price 10 %below home price	540
Materials used (suppliers extend 2 months' credit)	450
Wages paid, ½ month in arrears	360
Manufacturing expenses, paid 1 month in arrears	540
Administrative expenses, paid 1 month in arrears	120
Sales promotion expenses (payable quarterly - in advance)	60
Income - tax payable in 4 instalments of which one falls in the next financial year	150

The company keeps 1 month's stock of each of raw materials and finished goods and believes in keeping ₹20 lakh as cash. Assuming a 15% safety margin, ascertain the estimated working capital requirement of the company (ignore work -in-process).

Question 7

Camellia Industries Ltd. is desirous of assessing its Working Capital requirements for the next year. The finance manager has collected the following information for the purpose.

Estimated cost per unit of finished product	(₹ in lakh)
Raw materials	90
Direct labour	50
Manufacturing and administrative overhead (Excluding depreciation)	40
Depreciation	20
Selling overheads	30
Total Cost	230

The product is subject to excise duty of 10% (levied on cost of production) and is sold at ₹ 300 per unit.

Additional information:

i. Budgeted level of activity is 1,20,000 units of output for the next year.

ii. Raw material cost consists of the following:

Pig iron 65 per unit

Ferro alloys 15 per unit

Cast iron borings 10 per unit.

iii. Raw materials are purchased from different suppliers, extending different credit period.

Pig iron 2 months

Ferro alloys ½ months

Cast iron borings 1 month.

Product is in process for a period of 1/2 month. Production process requires full unit (100 %) of pig iron and ferroalloys in beginning of production. Cast iron boring is required only to the extent of 50 % in the beginning and the remaining is needed at a uniform rate during the process. Direct labour and other overheads accrue similarly at a uniform rate throughout production process.

v. Past trends indicate that the pig iron is required to be stored for 2 months and other materials for 1 month.

vi. Finished goods are in stock for a period of 1 month.

vii. It is estimated that one-fourth of total sales are on cash basis and the remaining sales are on credit. The past experience of the firm has been to collect the credit sales in 2 months.

viii. Average time-lag in payment of all overheads is 1 month and ½ month in the case of direct labour.

ix. Desired cash balance is to be maintained at ₹ 10 lakh.

You are required to determine the amount of net working capital of the firm. State your assumptions, if any.

Question 8

The following information is provided by the Doremon Limited for the year ending 31st March,2013

Raw Material storage period	50 days
Work in progress conversion period	18 days
Finished goods storage period	22 days
Debt collection period	45 days
Creditors payment period	55 days
Annual operating cost (including depreciation of ₹ 2,10,000)	₹ 21,00,000

(1 year= 360 days)

You are required to calculate:

(i) Operating Cycle Period

(ii) Number of operating cycle in a year

(iii) Amount of working capital required for the company on a cash cost basis

(iv) The company is a market leader in its product, there is virtually no competitor in the market. Based on a market research it is planning to discontinue sales on credit & deliver products based on pre- payments. Thereby it can reduce its working capital requirement substantially.

What should be the reduction in working capital requirement due to such decisions.

Question 9

The Trading & Profit & Loss Account of Manisha Ltd. For the year ended 31st March, 2011 is given below:

Particulars	Amount (₹)	Particulars	Amount (₹)
To opening stock		By Sales (Credit)	20,00,000
Raw Material	1,80,000	By closing Stock	
Work In Progress	60,000	Raw Material	2,00,000
Finished Goods	2,60,000	Work In Progress	1,00,000
To purchases (credit)	11,00,000	Finished Goods	3,00,000
To wages	3,00,000		
To Production Expenses	2,00,000		
To Gross Profit c/d	5,00,000		
	26,00,000		26,00,000
To Administration Expenses	1,75,000	By Gross Profit b/f	5,00,000
To selling expenses	75,000		
To Net Profit	2,50,000		
	5,00,000		5,00,000

The opening & closing balances of debtors were ₹ 1,50,000& ₹ 2,00,000 respectively whereas opening & closing creditors were ₹ 2,00,000 & ₹ 2,40,000 respectively.

You are required to ascertain the working capital requirement by operating cycle method

Question 10

Important ratios Kartik Co. for a year are given below. Compute working capital required for the year

Stock Velocity	4
Debt- Collection Period	2 months
Creditors Payment Period	73 days
Gross Profit (20% of sales)	₹ 2,00,000
Cash & Bank Balance	5% of sales
Credit Purchase	25%

The firm expects an increase of 50% in sales in the year

Question 11

Reshma Ltd. Is commencing a new project for manufacture of electric toys. The following cost information has been ascertained for annual production of 60,000 units at full capacity

	Amount Per Unit (₹)
Raw Material	20
Direct Labour	15
Manufacturing overheads: (Variable ₹ 15, Fixed ₹ 10)	25
Selling & Distribution overheads: (Variable ₹3, Fixed ₹ 1)	4
Total Cost	64
Profit	16
Selling price	80

In the first year of operations expected production & sales are 40,000 units & 35,000 units respectively. To assess the need of working capital, the following additional information is available:

Stock of Raw Material	3months consumption
Credit allowance for debtors	1 ½ months
Credit allowance by creditors	4 months
Lag in payment of wages	1 month
Lag in payment of overheads	½ month

(a) Cash in hand & bank is expected to be ₹ 60,000

(b) Provision for contingencies is required @ 10% of working capital requirement including that provision You are required to prepare a projected statement of working capital requirement for the first year of operations. Debtors are taken at cost.

QUESTION 12:

The following information has been extracted from the records of a company

Product cost sheet	₹ / unit
Raw Material	45
Direct Labour	20
Overheads	40
Total	105
Profit	15
Selling Price	120

Additional information:

(a) Raw Materials are in stock on an average of two months

(b) The materials are in process on an average for 4 weeks. The degree of completion is 50%

(c) Finished goods stock on an average is for one month

(d) Time lag in payment of wages & overheads is 1 ½ weeks

(e) Time lag I receipt of proceeds from debtors is 2 months

(f) Credit allowed by suppliers is one month

(g) 20% of the output is sold against cash

(h) The company expects to keep a cash balance ₹ 1,00,000

(i) Take 52 weeks per annum

The company is poised for a manufacture of ₹ 1,44,000 units in the year You are required to prepare a statement showing the Working Capital requirements of the company

QUESTION 13:

The following annual figures relate to Kamini Limited

Sales (at three months credit)	₹ 90,00,000
Materials consumed (suppliers extend one & half month's credit)	₹ 22,50,000
Wages paid (one month in arrear)	₹ 18,00,000
Manufacturing expenses outstanding at the end of the year (cash expenses are paid one month in arrear)	₹ 2,00,000
Total Administrative expenses for the year (cash expenses are paid one month in arrear)	₹ 6,00,000
Sales promotion expenses for the year ended (paid quarterly in advance)	₹ 12,00,000

The company sells it products on gross profit of 25% assuming depreciation as a part of cost of production. It keeps two months stock of finished goods & one month's stock of raw materials as inventory. It keeps cash balance ₹ 2,50,000 Assume a 5% safety margin, work out the working capital requirements of the company on cash cost basis. Ignore work-in-progress.

Administration expenses paid on month in arrear	₹ 12,00,000
Income Tax payable in four installments of which one falls in the next financial year	₹ 15,00,000

The company keeps one month's stock of each Raw Materials & Finished goods & believes in keeping ₹ 10,00,000 available to it including the overdraft limit of ₹ 5,00,000 not yet utilized by the company. Assume a 15% margin for contingencies. Ignore work in progress.

CHAPTER 5B - WORKING CAPITAL MANAGEMENT

Receivable Management

Meaning and Objectives of Receivables Management

Management of receivables refers to planning and controlling of 'debt' owed to the firm from customer on account of credit sales. It is also called as trade credit management.

The objectives of receivables management are as follows:

(a) To obtain optimum (non-maximum) value of sales;

(b) To control the cost of receivables, cost of collection, administrative expenses, bad debts and opportunity cost of funds blocked in the receivables;

(c) To maintain the debtors at minimum according to the credit policy offered to customers;

(d) To offer cash discounts suitably depending on the cost of receivables, bank rate of interest and opportunity cost of funds blocked in the receivables.

Costs of Maintaining Receivables

The costs with respect to maintenance of receivables can be identified as follows:

(i) Capital Costs: Maintenance of accounts receivable results in blocking of the firm's financial resources in them. This is because there is a time lag between the sale of goods to customers, the payments by them.

The firm has, therefore, to arrange for additional funds to meet its own obligations, such as payment to employees, suppliers of raw materials, etc.

(ii) Administrative Costs: The firm has to incur additional administrative costs for maintaining accounts receivable in the form of salaries to the staff kept for maintaining accounting records relating to customers, cost of conducting investigation regarding potential credit customers to determine their credit worthiness etc.

(iii) Collection Costs: The firm has to incur costs for collecting the payments from its credit customers. Sometimes, additional steps may have to be taken to recover money from defaulting customers.

(iv) Defaulting Costs: Sometimes after making all serious efforts to collect money from defaulting customers, the firm may not be able to recover the overdues because of the inability of the customers. Such debts are treated as bad debts and have to be written off since they cannot be realised.

Benefits of Maintaining Receivables

Important benefits of maintaining receivables are as follows:

(i) Increase in Sales: Except a few monopolistic firms, most of the firms are required to sell goods on credit, either because of trade customers or other conditions. The sales can further be increased by liberalizing the credit terms. This will attract more customers to the firm resulting in higher sales and growth of the firm.

(ii) Increase in Profits: Increase in sales will help the firm (a) to easily recover the fixed expenses and attaining the break-even level, and (b) increase the operating profit of the firm. In a normal situation, there is a positive relation between the sales volume and the profit.

(iii) Extra Profit: Sometimes, the firms make the credit sales at a price which is higher than the usual cash selling price. This brings an opportunity to the firm to make extra profit over and above the normal profit.

Factors Affecting the Size of Receivables

The size of accounts receivable is determined by a number of factors. Some of the important factors are as follows:

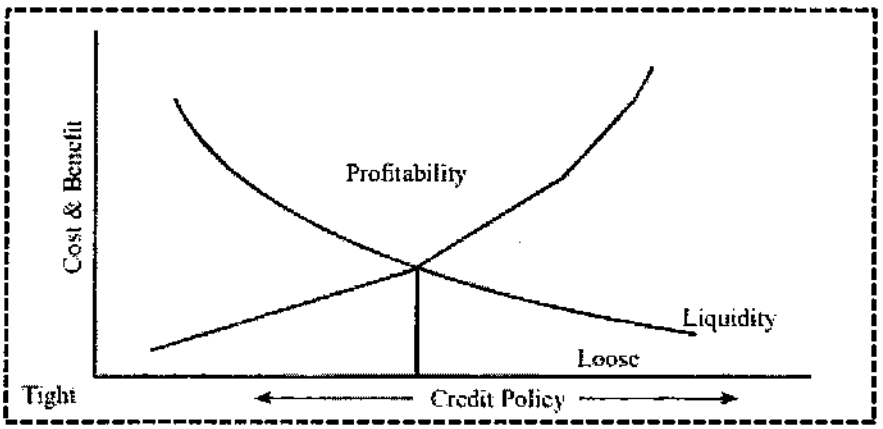
(i) Level of Sales: This is the most important factor in determining the size of accounts receivable. Generally, in the same industry, a firm having a large volume of sales will be having a larger level of receivables as compared to a firm with a small volume of sales.

(ii) Credit Policies: A firm's credit policy, as a matter of fact, determines the amount of risk the firm is willing to undertake in its sales activities. If a firm has a lenient or a relatively liberal credit policy, it will experience a higher level of receivables as compared to a firm with a more rigid or stringent credit policy.

(iii) Terms of Trade: The size of the receivables is also affected by terms of trade (or credit terms) offered by the firm. The two important components of the credit terms are (a) Credit period and (b) Cash discount.

Optimum Size of Receivables

The optimum investment in receivables will be at a level where there is a trade-off between costs and profitability. When the firm resorts to a liberal credit policy, the profitability of the firm increases on account of higher sales. However, such a policy results in increased investment in receivables, increased chances of bad debts and more collection costs. The total investment in receivables increases and, thus, the problem of liquidity is created. On the other hand, a stringent credit policy reduces the profitability but increases the liquidity of the firm. Thus, optimum credit policy occurs at a point where there is a "Trade-off" between liquidity and profitability as shown in the chart below.



The following are the aspects of credit policy:

(a) Level of credit sales required to optimise the profit.

(b) Credit period i.e., duration of credit, whether it may be 15 days or 30 or 45 days etc.

(c) Cash discount, discount period and seasonal offers.

(d) Credit standard of a customer: 5 C's of credit:

(i) Character of the customer i.e., willingness to pay.

(ii) Capacity- ability to pay.

(iii) Capital- financial resources of a customer.

(iv) Conditions- special conditions for extension of credit to doubtful customers and prevailing economic and market conditions and;

(v) Collateral security.

(e) Profits.

(f) Market and economic conditions.

(g) Collection policy.

(h) Paying habits of customers.

(i) Billing efficiency, record-keeping etc.
(j) Grant of credit size and age of receivables.

Optimum Credit Policy

A firm should establish receivables policies after carefully considering both benefits and costs of different policies. These policies relate to:
(i) Credit Standards (ii) Credit Terms, and (iii) Collection Procedures.
Each of these are explained below:

(i) Credit Standards: The term credit standards represent the basic criteria for extension of credit to customers. The levels of sales and receivables are likely to be high if the credit standards are relatively loose, as compared to a situation when they are relatively tight. The firm's credit standards are generally determined by the five "C's". Character, Capacity, Capital, Collateral and Conditions. Character denotes the integrity of the customer, i.e., his willingness to pay for the goods purchased. Capacity denotes his ability to manage the business. Capital denotes his financial soundness. Collateral refers to the assets which the customer can offer by way of security. Conditions refer to the impact of general economic trends on the firm or to special developments in certain areas of economy that may affect the customer's ability to meet his obligations.
Information about the five C's can be collected both from internal as well as external sources. Internal sources include the firm's previous experience with the customer supplemented by its own well-developed information system. External resources include customer's references, trade associations and credit rating organizations.

(ii) Credit Terms: Credit terms refers to the terms under which a firm sells goods on credit to its customers. As stated earlier, the two components of the credit terms are (a) Credit Period and (b) Cash Discount.

(iii) Collection Procedures: A stringent collection procedure is expensive for the firm because of high out-of-pocket costs and loss of goodwill of the firm among its customers. However, it minimises the loss on account of bad debts as well as increases savings in terms of lower capital costs on account of reduction in the size of receivables. A balance has therefore to be stuck between the costs and benefits of different collection procedures or policies.

Credit Evaluation of Customer

Credit evaluation of the customer involves the following five stages:

Stage 1: Gathering credit information of the customer through:

(a) Financial statements of a firm

(b) Bank references

(c) References from Trade and Chamber of Commerce

(d) Reports of credit rating agencies

(e) Credit Bureau reports

(f) Firm's own records (Past experience)

(g) Other sources such as trade journals, Income-tax returns, wealth tax returns, sales tax returns, Court caes, Gazette notifications etc.

Stage 2: Credit analysis:

After gathering the above information about the customer, the credit-worthiness of the applicant is to be analysed by a detailed study of 5 C's of credit as mentioned above.

Stage 3: Credit decision:

After the credit analysis, the next step is the decision to extend the credit facility to potential customer. If the analysis of the applicant is not upto the standard, he may be offered cash on delivery (COD) terms even by extending trade discount, if necessary, instead of rejecting the credit to the customer.

Stage 4: Credit limit:

If the decision is to extend the credit facility to the potential customer, a limit may be prescribed by the financial manager, say, ′ 25,000 or ′1,00,000 or so, depending upon the credit analysis and credit-worthiness of the customer.

Stage 5: Collection procedure:

A suitable and clear-cut collection procedure is to be established by a firm and the same is to be intimated to every customer while granting credit facility. Cash discounts may also be offered for the early payment of dues. These facilities faster recovery.

QUESTION 1:

A new customer has approached a firm to establish new business connection. The customer require 1.5 month of credit. If the proposal is accepted, the sales of the firm will go up by ₹ 2,40,000 per annum. The new customer is being considered as a member of 10% risk of non-payment group.

The cost of sales amounts to 80% of sales. The tax rate is 30% & the desired rate of return is 40% (after tax)

Should the firm accept the offer? Give your opinion on the basis of calculations.

QUESTION 2:

A company currently has an annual turnover of ₹ 50 Lakhs & an average collection period of 30 days. The company wants to experiment with a more liberal credit policy on the ground that increase in collection period will generate additional sales.

Credit Policy	Average Collection Period	Annual Sales (₹ Lakhs)
A	45 days	56
B	60 days	60
C	75 days	62
D	90 days	63

Variable cost- 80% of sales

Fixed cost- ₹ 6 Lakhs per annum

Required (pre-tax) return on investment 20%

A year may be taken to comprise of 360 days

QUESTION 3:

A trader whose current sales are ₹ 4,20,000 per annum and an average collection period of 30 days, wants to pursue a more liberal policy to improve sales. A study made by a management consultant reveals the following information.

Credit policy	Increasing in collection period	Increase in present	Present defaults anticipated
1	10 days	₹ 21,000	1.5%
2	30 days	₹ 52,500	3%
3	45 days	₹ 63,000	4%

The selling price per unit is ₹ 3. Average cost per unit ₹ 2.25 and variable cost per unit is ₹ 2. The current bad-debts loss is 1 % required return on additional investment is 20% assume a 360 days year.

Which of the above policies would u recommend for adoption?

QUESTION 4.

Minni ltd is considering a change in its present credit policy. Currently it is evaluating two policies the company is required to give a return of 20% on the investment in new accounts recievables the company s variable cost are 70% of the selling price. Information regarding present and proposed policies is as follow:

	Present policy	Policy Option 1	Policy Option 2
Annual credit sales ₹	30,00,000	42,00,000	45,00,000
Debtors turnover ratio	4 times	3, times	2.4 times
Loss due to bad debt	3% of sales	5 % of sales	6% of sales

Note: return on investment in new accounts receivable is based on cost of investment in debtors. Which option would you recommend?

QUESTION 5.

The sales manager of Lalli ltd suggests that if credit period is given for 1.5 months, sales may likely to increase by ₹ 1,20,000 per annum cost of sales amounted to 90% of sales the risk of non-payment is 5% income tax rate is 30% the excepted return on investment is ₹ 3,375 (after- tax) should the company accept the suggestion of sales manager?

QUESTION 6.

A firm as a current sales of ₹ 2,56,48,750. The firm has unutilized capacity. In order to boost it is considering the relaxation in its credit policy the proposed terms of credit will be 60 days credit agents the present policy of 45days as a result the bad debit will increase from 1.5% to 2% of sales. The firm sales are expected to increase by 10% the variable operating costs are 72% of the sales. The firm s corporate tax rate is 35% and it require an after tax return of 15% on its investment should the firm change its credit period?

QUESTION 7.

A company is presently having credit sales of ₹ 12 lakhs the existing credit tern are 1/10, net 45 days and average collection period is 30 days. The current bad debits loss is 1.5%% in order to accelerate the collection process further as also to increase sales, the company is contemplating liberalization of its existing credit terms to 2/10, net 45 days it is excepted that sales are likely to increase by 1/3 of existing sales, bad debits increase to 2% of sales and average collection period to decline to 20 days. The contribution to sales ratio of the company is 22% & opportunity cost of investment in receivables is 15 percent(pre-tax) 50% & 80% of customers in terms of sales revenue are expected to avail cash discount under existing & liberalization scheme respectively. The tax rate is 30%

Should the company change its credit terms? (Assume 360 days in year)

CHAPTER 5C - WORKING CAPITAL MANAGEMENT

Payable Management

Types of Payables or Trade Credits

Generally, Payables or Trade Credits may be classified into three types:
(a) Open Account
(b) Promissory Notes and
(c) Bills Payable
These are discussed briefly as under:

(a) Open Account: An open account is an arrangement between a business and a customer, where the customer can buy goods and services on a deferred payment basis. In this informal arrangement, the supplier, after satisfying himself about the credit-worthiness of the buyer, despatches the goods as required by the buyer and sends the invoice with particulars of quantity despatched, the rate and total price payable and the payment terms. The customer then pays the business at a later date. When purchases are made under this arrangement, the seller does not charge interest to the buyer. The buyer records his liability to the supplier in his books of accounts and this is shown as payables on open account. The buyer is then expected to meet his obligation on the due date.

(b) Promissory Note: The Promissory note is a formal document signed by the buyer promising to pay the amount to the seller at a fixed or determinable future time. It is a written agreement signed by drawer with a promise to pay the money on a specific date or whenever demanded. This note is a short-term credit tool which is not related to any currency note or banknote. Where the client fails to meet his obligation as per open credit on the due date, the supplier may require a formal acknowledgement of debt and a commitment of payment by a fixed date.

(c) Bills Payables: Bills Payables are instruments drawn by the seller and accepted by the buyer for payment on the expiry of the specified duration. The bill will indicate the banker to whom the amount is to be paid on the due date, and the goods will be delivered to the buyer against acceptance of the bill. The seller may either retain the bill and present it for payment on the due date or may raise funds immediately thereon by discounting it with the banker. The buyer will then pay the amount of the bill to the banker on the due date.

Determinants of Payables/Trade Credit

(a) Size of the firm: Smaller firms have increasing dependence on trade credit as they find it difficult to obtain alternative sources of finance as easily as medium or large sized firms. At the same time, larger firms that are less vulnerable to adverse turns in business can command prompt credit facility from the supplier, while smaller firms may find it difficult to sustain credit worthiness during periods of financial strain and may have reduced access to credit due to weak financial position.

(b) Industry category: Different categories of industries show varying degrees of dependence on trade credit. In certain lines of business, the prevailing commercial practices may stipulate purchases against payment in most cases. Monopoly firms may insist upon cash on delivery. There could be instances where the firm's inventory, turnover every fortnight but the firm enjoys thirty days credit from suppliers, whereby the trade credit not only finances the firm's inventory but also provides part of the operating funds or additional working capital.

(c) Nature of product: Products that sell faster or which have higher turnover may need shorter term credit. Products with slower turnover take longer to generate cash flows and will need extended credit terms.

(d) Financial position of seller: The financial position of the seller will influence the quantities and period of credit he wishes to extend. Financially weak suppliers will have to be strict and operate on higher credit terms to buyers. On the other hand, financially stronger suppliers can dictate stringent credit terms but may prefer to extend liberal credit so long as the transactions provide benefits in excess of the costs of extending credit. Suppliers with working capital crunch will be willing to offer higher cash discounts to encourage early payments.

(e) Terms of sale: The magnitude of trade credit is influenced by the terms of sale. These terms fall into several broad categories according to the net period within which payment is expected. When the terms of sale are only on cash basis, there can be two situations, viz., Cash on Delivery (COD) and Cash before Delivery (CBD). Under these two situations, the seller does not extend any credit.

(f) Degree of risk: Estimate of credit risk associated with the buyer will indicate what credit policy is to be adopted. The risk may be with reference to buyer's financial standing or with reference to the nature of the business the buyer is in.

(g) Cash discount: Cash discount influences the effective length of credit. Failure to take advantage of the cash discount could result in the buyer using the funds at an effective rate of interest higher than that of alternative sources of finance available.

(h) Nature and extent of competition: Monopoly status facilitates imposition of tight credit term whereas intense competition will promote the tendency to liberalise credit. Newly established companies in competitive fields may more readily resort to liberal trade credit for promoting sales than established firms which are more formal in deciding on credit policies.

(i) Datings: In seasonable industries, sellers frequently use datings to encourage customers to place their orders before a heavy selling period. The need for an air-conditioner is felt in the summer, leading to heavy ordering at a particular point of time. This has double advantages. For manufacturer, they can schedule production more conveniently and reduce the inventory levels. Whereas, the buyer has the advantage of not having to pay for the goods until the peak, of the selling period. Under this arrangement, credit is extended for a longer period than normal.

Computation of Cost of Credit or Payables

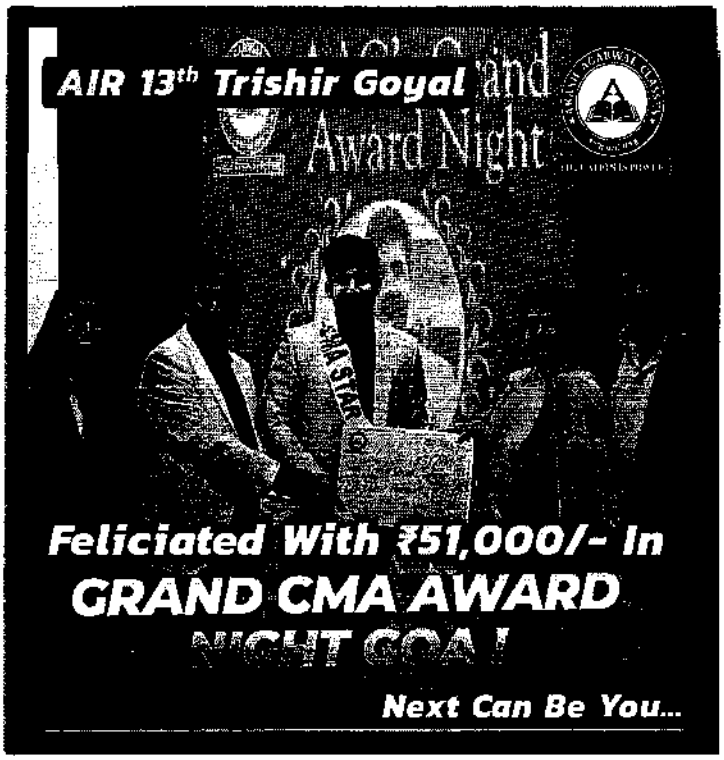
Cost of credit can be calculated in two situations:
To calculate nominal cost of credit on an annual basis of not considering discount, the formula is:

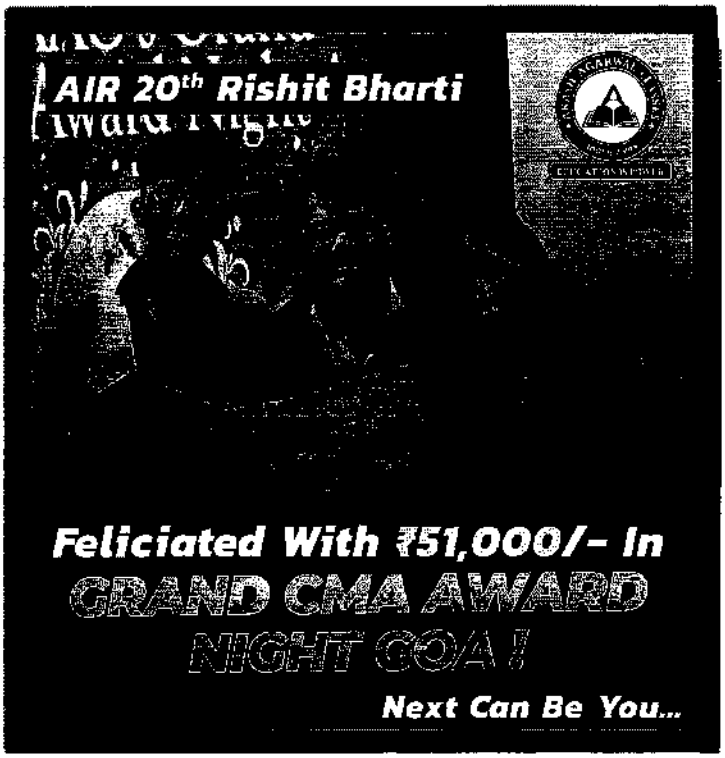
$$\frac{d}{(100-d)} \times \left(\frac{365 \text{ days}}{t}\right)$$

Where,
d= Size of discount or discount percentage (%)
t=Allowed payment days – discount days.

Question 1
A supplier of X Ltd. offers the company 2/15 net 40 payment terms. To translate the shortened description of the payment terms, the supplier will allow a 2% discount if paid within 15 days, or a regular payment in 40 days. Determine the cost of credit related to these terms.

CMA STUDENTS AND TEAM AAC CELEBRATING SUCCESS OF CMA INTER CLEARED STUDENT IN GOA





TOKEN OF MOTIVATION TO ACHIEVERS

.....NEXT CAN BE YOU.

CHAPTER 5D - WORKING CAPITAL MANAGEMENT

Inventory Management

Techniques of Inventory Management

The financial managers should aim at an optimum level of inventory on the basis of the trade-off between cost and benefit to maximize owner's health. Many mathematical models are available to handle inventory management problems. These are discussed below:

1. Economic Order Quantity
2. Fixing Levels of Materials
   (a) Minimum Level
   (b) Maximum Level
   (c) Reorder Level
   (d) Danger Level
3. ABC Inventory Control
4. Perpetual Inventory System.
5. VED classification
6. Just-In-Time
7. FSN Analysis
8. Inventory Turnover Ratio.

Economic Order Quantity: (EOQ)

The total costs of a material usually consist of Buying Cost, Total Ordering Cost and Total Carrying Cost. Economic Order Quantity is 'The size of the order for which both ordering and carrying cost are minimum'.

Ordering Cost: The costs which are associated with the ordering of material. It includes cost of staff posted for ordering of goods, expenses incurred on transportation, inspection expenses of incoming material etc.

Carrying Cost: The costs for holding the inventories. It includes the cost of capital invested in inventories. Cost of storage, Insurance etc.

Buying Cost: Amount paid / payable to the supplier for the goods. It includes the purchasing price plus all non-deductible taxes.

The assumption underlying the Economic Ordering Quantity: The calculation of economic order of material to be purchased is subject to the following assumptions: -

(a) Ordering cost per order and carrying cost per unit per annum are known and they are fixed.

(b) Anticipated usage of material in units is known.

(c) Cost per unit of the material is constant and is known as well.

(d) The quantity of material ordered is received immediately i.e. lead time is Zero.

The famous mathematician 'WILSON' derived the formula used for determining the size of order for each purchase at minimum ordering and carrying costs, which is as below:

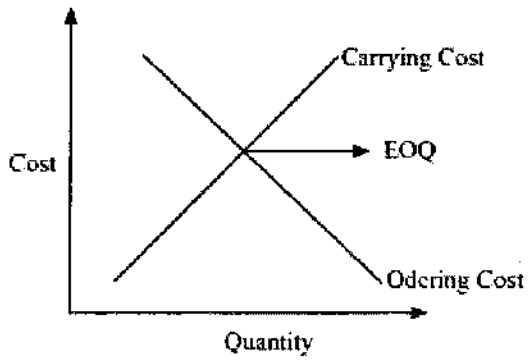
$$\text{Economic Ordering Quantity} = \frac{\sqrt{2AO}}{C}$$

Where,

A = Annual demand

O = Ordering Cost

C = Carrying Cost



Graphical Representation of EOQ

QUESTION 1

Calculate the Economic Order Quantity from the following information. Also state the number of orders to be placed in a year.

Consumption of materials per annum : 10,000 kg

Order placing cost per order : ₹ 50

Cost per kg. of raw materials : ₹ 2

Storage costs : 8% on average inventory

QUESTION 2

The average annual consumption of a material is 18,250 units at a price of ₹36.50 per unit. The storage cost is 20% on an average inventory and the cost of placing an order is ₹ 50. How much quantity is to be purchased at a time?

Fixing Levels of Materials

A. Maximum Level:

The Maximum Level indicates the maximum quantity of an item of material that can be held in stock at any time. The stock in hand is regulated in such a manner that normally it does not exceed this level.

While fixing the level, the following factors are to be taken into consideration:

(a) Maximum requirement of the store for production purpose, at any point of time.

(b) Rate of consumption and lead time.

(c) Nature and properties of the Store: For instance, the maximum level is necessarily kept low for materials that are liable to quick deterioration or obsolescence during storage.

(d) Storage facilities that can be conveniently spared for the item without determinant to the requirements of other items of stores.

(e) Cost of storage and insurance.

(f) Economy in prices: For seasonal supplies purchased in bulk during the season, the maximum level is generally high.

(g) Financial considerations: Availability of funds and the price of the stores are to be kept in view. For costly items, the maximum level should be as low as possible. Another point to be considered is the future market trend. If prices are likely to rise, the concern may like to stock-piling for keeping large stock in reserve for long-term future uses and in such a case, the level is pushed up.

(h) Rules framed by the government for import or procurement. If due to these and other causes materials are difficult to obtain and supplies are irregular the maximum level should be high.

(i) The maximum level is also dependent on the economic ordering quantity.

Maximum Level
Re-Order Level + Re-Order Quantity – (Minimum Rate of Consumption × Minimum Re-Order Period)

B. Minimum Level:

The Minimum Level indicates the lowest quantitative balance of an item of material which must be maintained at all times so that there is no stoppage of production due to the material being not available.

In fixing the minimum level, the following factors are to be considered: -

(a) Nature of the item: For special material purchased against customer's specific orders, no minimum level is necessary. This applies to other levels also.

(b) The minimum time (normal re-order period) required replenishing supply: This is known as the Lead Time and are defined as the anticipated time lag between the dates of issuing orders and the receipt of materials. Longer the lead time, lower is minimum level, the re-order point remaining constant.

(c) Rate of consumption (normal, minimum or maximum) of the material.

C. Re-Order Level:

When the stock in hand reaches the ordering or re-ordering level, store keeper has to initiate the action for replenish the material. This level is fixed somewhere between the maximum and minimum levels in such a manner that the difference of quantity of the material between the Re-ordering Level and Minimum Level will be sufficient to meet the requirements of production up to the time the fresh supply of material is received.

The basic factors which are taken into consideration in fixing a Re-ordering Level for a store item include minimum quantity of item to be kept, rate of consumption and lead time which are applied for computing of this level.

Re-Ordering level

Minimum Level + Consumption during lead time

Or

Minimum Level + (Normal Rate of Consumption × Normal Re-order Period)

Another formula for computing the Re-Order level is as below:

Re-Order level

Maximum Rate of Consumption × Maximum Re-Order period (lead time)

D. Danger Level

It is the level at which normal issue of raw materials are stopped and only emergency issues are only made. This is a level fixed usually below the Minimum Level. When the stock reaches this level very urgent action for purchases is indicated. This presupposed that the minimum level contains a cushion to cover such contingencies. The normal lead time cannot be afforded at this stage. It is necessary to resort to unorthodox hasty purchase procedure resulting in higher purchase cost.

The practice in some firms is to fix danger level below the Re-Ordering Level but above the Minimum Level. In such case, if action for purchase of an item was taken when the stock reached the Re-Ordering Level, the Danger Level is of no significance except that a check with the purchases department may be made as soon as the Danger Level is reached to ensure that everything is all right and that delivery will be made on the scheduled date.

Danger Level

Normal Rate of Consumption × Maximum reorder Period for emergency purchases

Question 3.

The components A and B are used as follows:

Normal usage.....300 units per week each

Maximum usage .....450 units per week each

Minimum usage .....150 units per week each

Reorder Quantity .....A- 2,400 units; B- 3,600 units.

Reorder period..... A -4 to 6 weeks, B -2 to 4 weeks.

Calculate for each component:

(a) Re-order Level, (b) Minimum Level, (c) Maximum Level and (d) Average Stock Level

3. ABC Analysis:

The "ABC Analysis" is an analytical method of stock control which aims at concentrating efforts on those items where attention is needed most. It is based on the concept that a small number of the items in inventory may typically represent the bulk money value of the total materials used in production process, while a relatively large number of items may present a small portion of the money value of stores used resulting in a small number of items be subjected to greater degree of continuous control.

Under this system, the materials stocked may be classified into a number of categories according to their importance, i.e., their value and frequency of replenishment during a period. The first category (we may call it group 'A' items) may consist of only a small percentage of total items handled but combined value may be a large portion of the total stock value. The second category, naming it as group 'B' items, may be relatively less important. In the third category, consisting of group 'C' items, all the remaining items of stock may be included which are quite large in number but their value is not high.

This concept may be clear by the following example:

Category	No. of Items	% of the Total No. of Items	Value (₹)	% of the Total Value Item	Average Value (₹)
A	75	6	70,000	70	933
B	375	30	20,000	20	53
C	800	64	10,000	10	12
	1250	100	1,00,000	100	998

Category 'A' items represent 70% of the total investment but as little as only 6% of the number of items.

Maximum control must be exercised on these items. Category 'B' is of secondary importance and normal control procedures may be followed. Category 'C' comprising of 64% in quantity but only 10% in value, needs a simpler, less elaborate and economic system of control.

The advantages of ABC analysis are:

(a) Closer and stricter control of those items which represent a major portion of total stock value is maintained.
(b) Investment in inventory can be regulated and funds can be utilized in the best possible manner. 'A' class items are ordered as and when need arises, so that the working capital can be utilized in a best possible way.
(c) With greater control over the inventories, savings in material cost will be realized.
(d) It helps in maintaining enough safety stock for 'C' category of items.
(e) Scientific and selective control helps in the maintenance of high stock turnover ratio.

4. Perpetual Inventory System

Perpetual Inventory System may be defined as 'a system of records maintained by the controlling department, which reflects the physical movements of stocks and their current balance'. Thus, it is a system of ascertaining balance after every receipt and issue of materials through stock records to facilitate regular checking and to avoid closing down the firm for stock taking. To ensure the accuracy of the perpetual inventory records (bin Card and Stores Ledger), physical verification of stores is made by a programme of continuous stock taking.

The operation of the perpetual inventory system may be as follows:

(a) The stock records are maintained and up to date posting of transactions are made there in so that current balance may be known at any time.
(b) Different sections of the stores are taken up by rotation for physical checking. Every day some items are checked so that every item may be checked for a number of times during the year.
(c) Stores received but awaiting quality inspection are not mixed up with the regular stores at the time of physical verification, because entries relating to such stores have not yet been made in the stock records.
(d) The physical stock available in the store, after counting, weighing, measuring or listing as the case may be, is properly recorded in the bin cards / Inventory tags and stock verification sheets.

Perpetual inventory system should not be confused with continuous stock taking; Continuous stock taking is an essential feature of perpetual inventory system. Perpetual inventory means the system of stock records and continuous stock taking, whereas continuous stock taking means only the physical verification of the stock records with actual stocks.

In continuous stock taking, physical verification is spread throughout the year. Everyday 10 to 15 are taken at random by rotation and checked so that the surprise element in stock verification may be maintained and each item may be checked for a number of times each year. On the other hand, the surprise element is missing in case of periodical checking, because checking is usually done at the end

of year.

Advantages of Perpetual Inventory System:

(a) The system obviates the need for the physical checking of all items of stock and stores at the end of the year.

(b) It avoids the dislocation of the routine activities of the organisation including production and despatch.

(c) A reliable and detailed check on the stores is maintained.

(d) Errors, irregularities and loss of stock through other methods are quickly detached and through necessary action recurrence of such things in future is minimized.

(e) As the work is carried out systematically and without undue haste the figures are readily available.

(f) Actual stock can be compared with the authorized maximum and minimum levels, thus keeping the stocks within the prescribed limits. The disadvantages of excess stocks are avoided and capitalised up in stores materials cannot exceed the budget.

(g) The recorder level of various items of stores are readily available thus facilitating the work of procurement of stores.

(h) For monthly or quarterly financial statements like Profit and Loss Account and Balance Sheet the stock figures are readily available and it is not necessary to have physical verification of the balances.

5. VED Analysis

VED stands for Vital, Essential and Desirable- analysis is used primarily for control of spare parts. The spare parts can be classified into three categories i.e Vital, Essential and Desirable- keeping in view the criticality to production.

Vital: The spares, stock-out of which even for a short time will stop the production for quite some time, and where in the stock-out cost is very high are known as Vital spares. For a car Assembly Company, Engine is a vital part, without the engine the assembly activity will not be started.

Essential: The spares or material absence of which cannot be tolerated for more than few hours or a day and the cost of lost production is high and which is essential for production to continue are known as Essential items. For a car assembly company 'Tyres' is an essential item, without fixing the tyres the assembly of car will not be completed.

Desirable: The Desirable spares are those parts which are needed, but their absence for even a week or more also will not lead to stoppage of production. For example, CD player, for a car assembly company.

Some spares though small in value, may be vital for production, requires constant attention. Such spares may not pay attention if the organization adopts ABC analysis.

6. FSN Analysis

FSN analysis is the process of classifying the materials based on their movement from inventory for a specified period. All the items are classified in to F-Fast moving, S- Slow moving and N-Non-moving Items based on consumption and average stay in the inventory. Higher the stay of item in the inventory, the slower would be the movement of the material. This analysis helps the store keeper / purchase department to keep the fast-moving items always available & take necessary steps to dispose off the non-moving inventory.

7. Just-in-Time (JIT)

Just in time (JIT) is a production strategy that strives to improve a business return on investment by reducing in-process inventory and associated carrying costs. Inventory is seen as incurring costs, or waste, instead of adding and storing value, contrary to traditional accounting. In short, the Just-in-Time inventory system focuses on "the right material, at the right time, at the right place, and in the exact amount" without the safety net of inventory.

The advantages of Just-in-Time system are as follows: -

(a) Increased emphasis on supplier relationships. A company without inventory does not want a supply system problem that creates a part shortage. This makes supplier relationships extremely important.

(b) Supplies come in at regular intervals throughout the production day. Supply is synchronized with production demand and the optimal amount of inventory is on hand at any time. When parts move directly from the truck to the point of assembly, the need for storage facilities is reduced.

(c) Reduces the working capital requirements, as very little inventory is maintained.

(d) Minimizes storage space.

(e) Reduces the chance of inventory obsolescence or damage.

8. Inventory Turnover Ratio

Inventory Turnover:

Inventory Turnover signifies a ratio of the value of materials consumed during a given period to the average level of inventory held during that period. The ratio is worked out on the basis of the following formula:

$$\text{Inventory Turnover Ratio} = \frac{\text{Value of material consumed during the period}}{\text{Value of average stock held during the period}}$$

The purpose of the above ratio is to ascertain the speed of movement of a particular item. A high ratio indicates that the item is moving fast with a minimum investment involved at any point of time. On the other hand, a low ratio indicates the slow-moving item. Thus, Inventory Turnover Ratio may indicate slow moving dormant and obsolete stock highlighting the need for appropriate managerial actions.

Question 4.

Compute the Inventory Turnover Ratio from the following:

Opening Stock - ₹1,00,000
Closing Stock - ₹1,60,000
Material Consumed - ₹7,80,000

Question 5.

Two components A and B are used as follows:
Normal usage = 50 per week each
Re-order quantity = A- 300; B-500
Maximum usage = 75 per week each
Minimum usage = 25 per week each
Re-order period: A - 4 to 6 weeks; B - 2 to 4 weeks
Calculate for each component
(a) Re-order level; (b) Minimum level; (c) Maximum level; (d) Average stock level.

Question 6. (Homework sum)

X Ltd. buys its annual requirement of 36,000 units in six installments. Each unit costs ₹1 and the ordering cost is ₹25. The inventory carrying cost is estimated at 20% of unit value. Find the total annual cost of the existing inventory policy. How much money can be saved by using E.O.Q?

Question 7. (Homework sum)

The annual demand for an item is 3,200 units. The unit cost is ´6 and inventory carrying charges is 25% p.a. If the cost of one procurement is ´150, determine:

(a) E.O.Q (b) No. of orders per year (c) Time between two consecutive orders.

Question 8. (Homework sum)

A company manufactures a special product which requires a component 'Alpha'. The following particulars are collected for the year 2021.

(i) Annual demand of Alpha 8,000 units

(ii) Cost of placing an order ´ 200 per order

(iii) Cost per unit of Alpha ´ 400

(iv) Carrying cost % p.a. 20%

The company has been offered a quantity discount of 4% on the purchase of 'Alpha' provided the order size is 4,000 components at a time.

Required:

(a) Compute the economic order quantity.

(b) Advise whether the quantity discount offer can be accepted

CHAPTER 5E - WORKING CAPITAL MANAGEMENT

Management of Cash and Cash Equivalents

Significance of Cash Management

The cash management assumes significance for the following reasons:

(i) Cash planning: Cash is the most important as well as the least unproductive of all current assets. Though, it is necessary to meet the firm's obligations, yet idle cash earns nothing. Therefore, it is essential to have a sound cash planning neither excess nor inadequate.

(ii) Management of cash flows: This is another important aspect of cash management. Synchronisation between cash inflows and cash outflows rarely happens. Sometimes, the cash inflows will be more than outflows because of receipts from debtors, and cash sales in huge amounts. At other times, cash outflows exceed inflows due to payment of taxes, interest and dividends etc. Hence, the cash flows should be managed for better cash management.

(iii) Maintaining optimum cash balance: Every firm should maintain optimum cash balance. The management should also consider the factors determining and influencing the cash balances at various point of time. The cost of excess cash and danger of inadequate cash should be matched to determine the optimum level of cash balances.

(iv) Investment of excess cash: The firm has to invest the excess or idle funds in short term securities or investments to earn profits as idle funds earn nothing. This is one of the important aspects of management of cash. Thus, the aim of cash management is to maintain adequate cash balances at one hand and to use excess cash in some profitable way on the other hand.

Motives of holding Cash

Motives or desires for holding cash refers to various purposes. The purpose may be different from person to person and situation to situation. G.A. Pogue (1969) in his research paper Cash Management: A System Approach, stated three motives for holding cash such as (i) Transaction motives; (ii) Precautionary motives and (iii) Speculative motives. These are discussed below:

(i) Transaction Motives: A firm needs cash for making transactions in the day-to-day operations. The cash is needed to make payments for purchases, wages, salaries, other expenses, taxes, dividend, etc. The need to hold cash would not arise if there were perfect synchronisation between cash receipts and cash payments. When cash payments exceed cash receipts, the firm would maintain some cash balance to be able to make required payments. For transactions purpose, a firm may invest its cash in marketable securities. Generally, the firm will purchase securities whose maturity corresponds with some anticipated payments whose timing is not perfectly matched with cash receipts.

(ii) Precautionary Motives: Precautionary motive refers to hold cash as a safety margin to act as a financial reserve. In addition to the non-synchronization of anticipated cash inflows and outflows in the ordinary course of business, a firm may have to pay cash for purposes which cannot be predicted or anticipated. A firm may have to face emergencies such as strikes and lock-up from employees, increase in cost of raw materials, funds and labor, fall in market demand and so on. But how much cash is held against these emergencies depends on the degree of predictability associated with future cash flows. If there is high degree of predictability, less cash balance is sufficient. Some firms may have strong borrowing capacity at a very short notice, so that they can borrow at the time when emergencies occur. Such a firm may hold very minimum amount of cash for this motive.

(iii) Speculative Motives: It refers to the need to hold cash in order to be able to take advantage of negotiating purchases that might happen, appealing interest rates and positive exchange rate fluctuations. Some firms hold cash in excess than transaction and precautionary needs to involve in speculation.

The advantages of speculative motives for holding cash are:

(a) An opportunity to purchase raw materials a reduced price on payment of immediate cash;

(b) Delay purchases of raw materials on the anticipation of a decline in price;

(c) A chance to speculate on interest rate movements by buying securities when interest rates are expected to decline; and

(d) Make a purchase at a favorable price.

Besides, another motive to hold cash balance is to compensate banks for providing certain services and loans.

(iv) Compensating Motives: Banks provide a variety of services to business firms such as clearance of cheque, credit information, transfer of funds and so on. Bank either charge commission, fees for these services or seek indirect compensation. Usually, clients are required to maintain a minimum balance of cash to the bank. This balance is called compensating balance. Firms cannot utilize this balance for transaction purposes, rather banks can use this amount to earn a return.

Objectives of Cash Management

The basic objectives of cash management are:
(i) to make the payments when they become due and
(ii) to minimize the cash balances.
The task before the cash management is to reconcile the two conflicting nature of objectives. Keeping in view, these two conflicting aspects of cash management, it requires to determine the need of cash balances and review of the approaches to achieve optimum cash balances. There is a need to discuss the factors affecting cash needs.

Factors determining Cash needs

Maintenance of optimum level of cash is the main problem of cash management. The level of cash holding differs from industry to industry, organisation to organisation. The factors determining the cash needs of the industry is explained as follows:

(a) Matching of Cash Flows: The first and very important factor determining the level of cash requirement is matching cash inflows with cash outflows. If the receipts and payments are perfectly coincided or balance each other, there would be no need for cash balances. The need for cash management therefore, due to the non-synchronisation of cash receipts and disbursements.

(b) Short Costs: short costs are defined as the expenses incurred as a result of shortfall of cash. The short costs include, transaction costs associated with raising cash to overcome the shortage, borrowing costs associated with borrowing to cover the shortage i.e., interest on loan, loss of trade-discount, penalty rates by banks to meet a shortfall in cash balances and costs associated with deterioration of the firm's credit rating etc. which is reflected in higher bank charges on loans, decline in sales and profits.

(c) Cost of Excess Cash Balances: One of the important factors determining the cash needs is the cost of maintaining cash balances i.e., excess or idle cash balances. The cost of maintaining excess cash balance is called excess cash balance cost.

(d) Uncertainty in Business: The first requirement of cash management is a precautionary cushion to cope with irregularities in cash flows, unexpected delays in collections and disbursements and defaults. The uncertainty can be overcome through accurate forecasting of tax payments, dividends, capital expenditure etc. and ability of the firm to borrow funds through over draft facility.

(e) Cost of Procurement and Management of Cash: The costs associated with establishing and operating cash management staff and activities determining the cash needs of a business firm. These costs are generally fixed and are accounted for by salary, storage and handling of securities etc. The above factors are considered to determine the cash needs of a business firm.

Models of Cash Management

The strategies for cash management or cash management models are discussed in detail in the following lines:

I. Projection of Cash Flows and Planning

The cash planning and the projection of cash flows is determined with the help of Cash Budget. The Cash Budget is the most important tool in cash management. It is a device to help a firm to plan and control the use of cash. It is a statement showing the estimated cash inflows and cash outflows over the firm's planning horizon. In other words, the net cash position i.e., surplus or deficiency of a firm is highlighted by the cash budget from one budgeting period to another period. Cash budget involves various elements.

The first element of a cash budget is the selection of period of time i.e., budget period. It is called planning horizon. The planning horizon means the time span and the sub-periods within that time span over which cash flows are to be projected.

The second element of the cash budget is the selection of the factors that have a bearing on cash flows. The factors are generally divided into two broad categories: (a) Operating and (b) Financial.

II. Determining Optimal Level of Cash holding by the Company

The optimal level of cash holding by a company can be determined with the help of the following models:

(a) Inventory Model (Economic Order Quantity) to Cash Management (Baumol Model)
(b) Stochastic (Miller-Orr) Model
(c) Probability Model

These are discussed below:

(a) Inventory Model (EOQ) to Cash Management (Baumol Model)

Economic Order Quantity (EOQ) model is used in determination of optimal level of cash of a company. According to this model optimal level of cash balance is one at which cost of carrying the inventory of cash and cost of going to the market for satisfying cash requirements is minimum. The carrying cost of holding cash refers to the interest foregone on marketable securities whereas cost of giving to the market means cost of liquidating marketable securities in cash.

Optimum level of cash balance can be determined as follows:

$$C = \frac{\sqrt{2A \times F}}{O}$$

Where,

C = Optimum cash balance

A = Annual (or monthly) cash disbursement

F = Fixed cost per transaction

O = Opportunity cost of one rupee per annum (or per month)

Assumptions of the Baumol Model:

The following are the assumptions of Baumol's model:

(i) The first assumption of this model is that the firm is able to forecast correctly and precisely the amount of cash required by it. Cash needs of the firms are known with certainty.

(ii) The firm makes its cash payments uniformly over a period of time. Thus, the cash payments arise uniformly over the future time period.

(iii) The firm very well understands the opportunity cost of the cash held by it. The opportunity cost of interest for gone by not investing in marketable securities. Such holding cost per annum is assumed to be constant.

(iv) The transaction cost of the firm is constant and known. The transaction cost is the cost incurred whenever the firm converts its short-term securities to cash.

(v) The surplus cash is invested into marketable securities and those securities are again disposed off to convert them again into cash. Such purchase and sale transactions involve certain costs like clerical brokerage registration and other costs. The cost to be incurred for each such transaction is assumed to be constant / fixed. In practice, it would be difficult to calculate the exact transaction cost.

(vi) The short-term marketable securities can be freely brought and sold. Existence of free market for marketable securities is a perquisite of the Baumol model.

Limitations of the Baumol Model

The limitations in Baumol's Model are as follows:

(i) The model can be applied only when the payments position can be reasonably assessed.

(ii) The major demerit of this model is that it does not allow the cash flows to fluctuate. The cash flows are assumed to be constant and known over the time period, which practically is not possible in real world.
Firms are not able to use their cash balance uniformly.

(iii) Similarly, the firms cannot predict their daily cash inflows and outflows.

(iv) Degree of uncertainty is high is predicting the cash flow transactions. Behaviour of cash inflow and out flow is assumed to be too smooth and certain. Cash inflow and outflow of businesses are too erratic. Daily cash balance may fluctuate, leading to an unpredictable pattern of cash flow. Thus, at no point an ideal optimum cash balance C be maintained practically.

(v) The model merely suggests only the optimal balance under a set of assumptions. But in actual situation it may not hold good. Nevertheless, it does offer a conceptual framework and can be used with caution as a benchmark.

QUESTION 1

The outgoings of X Ltd. are estimated to be ₹ 5,00,000 p.a., spread evenly throughout the year. The money on deposit earns 12% p.a. more than money in a current account. The switching costs per transaction are ₹150. Calculate to optimum amount to be transferred.

QUESTION 2 (homework)

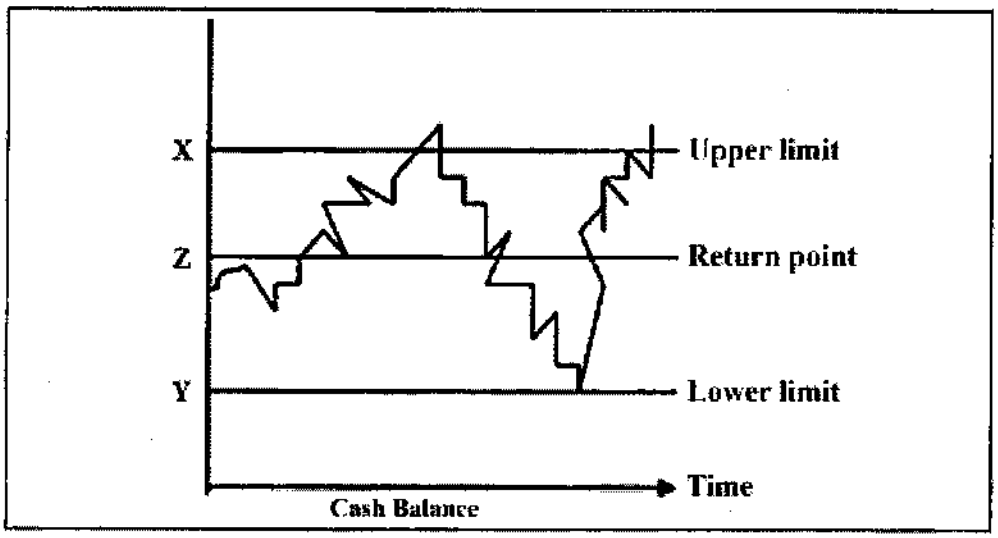
ABC Ltd. has an estimated cash payments of ₹8,00,000 for a one-month period and the payments are expected to steady over the period. The fixed cost per transaction is ₹250 and the interest rate on marketable securities is 12% p.a. Calculate the optimum transaction size.

(b) Stochastic (Miller-Orr) Model:

The important limitation of the Baumol Model is that it does not allow the cash flows to fluctuate. So, the firms do not use their cash balance uniformly nor are they able to predict daily cash inflows and outflows.

The Miller-Orr overcomes this shortcoming and allows for daily cash variation.

This model assumes that net cash flows are normally distributed with a zero value of mean and standard deviation. Miller-Orr model provides two control limits, Upper control Limit (UCL) and Lower Control Limit (LCL) as well as return point. When the cash flows of the firm fluctuate randomly and hit the upper limit, then it buys sufficient marketable securities to come back to a normal level of cash balance i.e., return point. Similarly, when the firm's cash flows wander and hit the lower limit, then the firm sells sufficient marketable securities to bring the cash balance back to the normal level i.e., return point. This is shown in a diagram below:



Stochastic (Miller-Orr) Model

The difference between the upper limit and the lower limit depends on the following factors:

(a) Transaction costs (c)

(b) Interest rate (k)

(c) Standard deviation of the net cash flows

The optimal point of cash balance (Z) is determined by using the formula:

$$Z = \left(\frac{3}{4} \times \frac{c\sigma^2}{k} \right)^{\frac{1}{3}}$$

Where,

Z = Target cash balance (Optimal cash balance)

c = Transaction cost

k = Interest rate

σ = Standard deviation of net cash flows.

It is observed from the above that the upper and lower limits will be far off from each other, if transaction cost is higher or cash flows show greater fluctuations. The limits will come closer as the interest increases. Z is inversely related to the interest rate. The upper and lower control limits can be shown:

Upper limit = Lower limit + Z

Return Point = Lower limit + Z

Limitations: This model is subjected to some practical problems

(i) The first and important problem is in respect of collection of accurate data about transfer costs, holding costs, number of transfers and expected average cash balance.

(ii) The cost of time devoted by financial managers in dealing with the transfers of cash to securities and vice versa.

(iii) The model does not take into account the short-term borrowings as an alternative to selling of marketable securities when cash balance reaches lower limit.

Besides the practical difficulties in the application of the model, the model helps in providing more, better and quicker information for management of cash. It was observed that the model produced considerable cost savings in the real-life situations.

QUESTION 3

The management of X Ltd. has a policy of maintaining a minimum cash balance of ₹5,00,000. The standard deviation of the company's daily cash flows is ₹2,00,000. The annual interest rate is 14%. The transaction cost of buying or selling securities is ₹150 per transaction. Determine the upper control limit and the return point cash balance of X Ltd. as per the Miller-Orr Model.

(c) Probability Model

According to this model, a finance manager has to estimate probabilistic out comes for net cash flows on the basis of his prior knowledge and experience. He has to determine what is the operating cash balance for a given period, what is the expected net cash flow at the end of the period and what is the probability of occurrence of this expected closing net cash flows.

The optimum cash balance at the beginning of the planning period is determined with the help of the probability distribution of net cash flows. Cost of cash shortages, opportunity cost of holding cash balances and the transaction cost.

Assumptions:

(i) Cash is invested in marketable securities at the end of the planning period say a week or a month.

(ii) Cash inflows take place continuously throughout the planning period.

(iii) Cash inflows are of different sizes.

(iv) Cash inflows are not fully controllable by the management of firm.

(v) Sale of marketable securities and other short-term investments will be affected at the end of the planning period.

The probability model prescribed the decision rule for the finance manager that he should go on investing in marketable securities from the opening cash balance until the expectation, that the ending cash balance will be below the optimum cash balance, where the ratio of the incremental net return per rupee of investment is equal to the incremental shortage cost per rupee.

(III) Strategy for Economizing Cash:

Once cash flow projections are made and appropriate cash balances are established, the finance manager should take steps towards effective utilization of available cash resources. A number of strategies have to be developed for this purpose. They are:

(a) Strategy towards accelerating cash inflows and

(b) Strategy towards decelerating cash outflows

(a) Strategy towards accelerating cash inflows: In order to accelerate the cash inflows and maximize

the available cash the firm has to employ several methods such as reduce the time lag between the moment a payment to the company is mailed and the moment the funds are ready for

redeployment by the company. This includes the quick deposit of customer's cheques, establishing collection centers and lock – box system etc.

(b) Strategy for slowing cash outflows: In order to accelerate cash availability in the company, finance manager must employ some devices that could slow down the speed of payments outward in addition to accelerating collections. The methods of slowing down disbursements are as follows:

(i) Delaying outward payment;

(ii) Making pay roll periods less frequent;

(iii) Solving disbursement by use of drafts;

(iv) Playing the float;

(v) Centralised payment system;

(vi) By transferring funds from one bank to another bank firm can maximize its cash turnover.

QUESTION 4 (HOMEWORK SUM)

United Industries Ltd. projects that cash outlays of ₹ 37,50,000 will occur uniformly throughout the coming year. United plans to meet its cash requirements by periodically selling marketable securities from its portfolio. The firm's marketable securities are invested to earn 12% and the cost per transaction of converting securities to cash is ₹ 40.

(a) Use the Baumol Model to determine the optimal transaction size of marketable securities to cash.

(b) What will be the company's average cash balance?

(c) How many transfers per year will be required?

(d) What will be the total annual cost of maintaining cash balances?

QUESTION 5

The Cyberglobe Company has experienced a stochastic demand for its product. With the result that cash balances fluctuate randomly. The standard deviation of daily net cash flows is ₹1,000. The company wants to impose upper and lower bound control limits for conversion of cash into marketable securities and vice-versa.

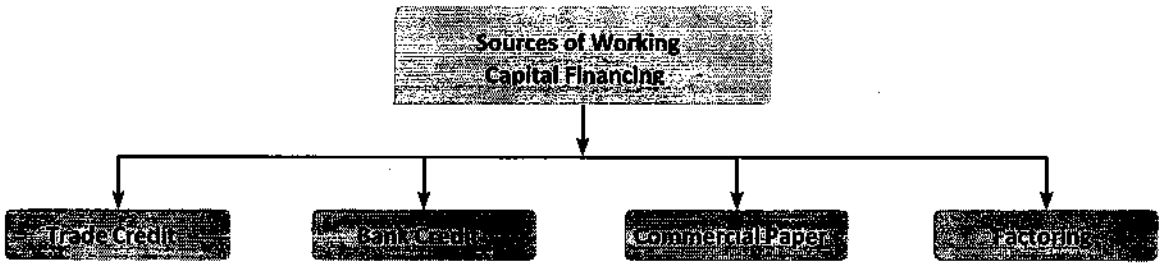
The current interest rate on marketable securities is 6%. The fixed cost associated with each transfer is ₹1,000 and minimum cash balance to be maintained is ₹10,000.

Compute the upper limit, return point and average cash balances.

CHAPTER 5F - WORKING CAPITAL MANAGEMENT

FINANCING WORKING CAPITAL

Long-term sources of finance primarily support fixed assets and secondarily provide the margin money for working capital. Whereas, short-term sources of finance more or less exclusively support the current assets. The need for working capital financing mainly because the investment in working capital/current assets i.e., raw materials, work-in-progress, finished goods and receivables which are typically fluctuates during the year. The main sources of working capital finance are shown below in a diagram:



The two important sources of finance for working capital are: (a) trade credit and (ii) bank credit or borrowings. Other sources of finance for working capital are (c) factoring and (d) commercial paper.

(a) Trade Credit

Trade credit represents the credit extended by the supplier of goods and services. In practice, the purchasing firms do not have to pay cash immediately for the purchase made. This deferral of payments is a short-term financing that is called trade credit. Trade credit arises in the normal transactions of the firm without specific negotiations, provided the firm is considered creditworthy by its supplier. It is an important source of finance representing 25% to 50% of short-term financing in different industries. Trade credit is mostly an informal arrangement and is granted on an open account basis. Open account trade credit appears as sundry creditors known as accounts payable. Trade credit may also take the form of bills payable.

(b) Bank Credit/ Borrowings

Working capital advances by commercial banks represents the most important source for

financing current assets. In India, banks may give financial assistance in different shapes and forms. The usual form of bank credits are as follows:

(i) Overdraft

(ii) Cash Credit

(iii) Loans

(iv) Bills Purchased and Bills Discounting

(v) Letter of Credit

(vi) Working Capital Term Loan

(vii) Funded Interest Term Loan

These are discussed below:

(i) Overdrafts: Under the overdraft arrangement, a borrower is allowed to withdraw funds in excess of the balance in his current account up to a pre-determined limit for borrowing is specified by the bank. Though the overdraft amount is repayable on demand, it generally continues for a longer period by annual renewals of the limits. Interest is charged on daily balances on the amount actually withdrawn subject to some minimum charges. The borrower operates the account through cheques.

(ii) Cash Credit: The cash credit is a very popular method of bank finance for working capital in India. It is more or less similar to overdraft facility. Under this method, a borrower is allowed to withdraw funds from the bank up to a sanctioned credit limit.

(iii) Loans: These are advances of fixed amounts which are credited to the current account of the borrower or released to him in cash. The borrower is charged with interest on the entire loan amount, irrespective of how much he draws.

(iv) Purchase / Discounting of Bills: A bill arises out of a trade transaction. The seller of goods draws the bill on the purchaser. The bill may be either clean or documentary (a documentary bill is supported by a document of title to goods like a railway receipt or a bill of lading) and may be payable on demand or after a usance period which does not exceed 90 days. On acceptance of the bill by the purchaser, the seller offers it to the bank for discount / purchase. When the bank discounts / purchases the bill, it releases the funds to the seller. The bank presents the bill to the purchaser (the acceptor of the bill) on the due date and gets its payment.

(v) Letter of Credit: Letter of Credit is a formal document issued by a bank on behalf of customer, mentioning the conditions under which the bank will honour the commitments of the customer. A letter of credit is an arrangement whereby a bank helps its customer to obtain credit from its (customer's) suppliers. When a bank opens a letter of credit in favour of its customer for some specific purchases, the bank undertakes the responsibility to honour the obligation of its customer, should the customer fail to do so.

(vi) Working Capital Term Loan: At the time the computation of maximum permissible bank finance under the third method or new system of lending, in some cases the net working capital was negative while in others it was equal to 25 % of working capital gap. The Tandon Committee allowed this deficiency to be financed, in addition to the permissible bank finance, by banks. This kind of credit facility is called working capital term loan. The working capital term loan was not allowed to be raised in the subsequent years. For additional credit requirement arising in subsequent years, the borrower's long-term sources were required to provide 25 % of the additional working capital gap. The banks could grant regular term loans against fixed assets.

(vii) Funded Interest Term Loan (FITL): As per the Reserve Bank of India, the unrealised portion of interest in the existing borrowal accounts may be funded and treated as funded interest term loan. The FITL will have a repayment period of 7 years inclusive of a moratorium period of 2 years.

(c) Commercial Paper

Commercial paper is an unsecured, short-term promissory note issued by highly reputed and credit rated companies, mostly on a discount basis. Generally, large firms with considerable financial strength are able to issue commercial paper. Features, issuers and other aspects of commercial paper are discussed in section 6.3.3.

(d) Factoring

Factoring, as a fund based financial service, provides resources to finance receivables as well as facilities the collection of receivables. It is another method of raising short-term finance through accounts receivable credit offered by commercial banks and factors. A commercial bank may provide finance by discounting the bills or invoices of its customers. Thus, a firm gets immediate payment for sales made on credit. A factor is a financial institution which offers services relating to management and financing of debts arising out of credit sales. Factoring is becoming popular all over the world on account of various services offered by the institutions engaged in it. Factors render services varying from bill discounting facilities offered by commercial banks to a total take-over of administration of credit sales including maintenance of sales ledger, collection of accounts receivables, credit control and protection from bad debts, provision of finance and rendering of advisory services to their clients. Factoring, may be on a recourse basis, where the risk of bad debts is borne by the client, or on a non-recourse basis, where the risk of credit is borne by the factor.

At present, factoring in India is rendered by only a few financial institutions on a recourse basis. However, the Report of the Working Group on Money Market (Vaghul Committee) constituted by the Reserve Bank of India has recommended that banks should be encouraged to set up factoring divisions to provide speedy finance to the corporate entities.

In spite of many services offered by factoring, it suffers from certain limitations. The most critical fall outs of factoring include (i) the high cost of factoring as compared to other sources of short-term finance, (ii) the perception of financial weakness about the firm availing factoring services, and (iii) adverse impact of tough stance taken by factor, against a defaulting buyer, upon the borrower resulting into reduced future sales.

- **Monthly Cash Flow Forecast and Analysis**

Cash forecasting may be made on short or long-term basis. Generally, forecasts covering periods of one year or quarterly or monthly or less are considered short-term; those extending beyond one year are considered long-term. A monthly cash flow forecast is focused on the month-to-month management of cash and liquidity of the organisation.

The objectives of monthly cash flow forecasts are:

- To determine operating cash requirements;
- To anticipate short-term financing;
- To manage investment of surplus cash.

The monthly or short-term cash flow forecast helps in determining the cash requirements for a predetermined period to run a business. If the cash requirements are not determined, it would not be possible for the management to know how much cash balance is to be kept in hand, to what extent bank financing be depended upon and whether surplus funds would be available to invest in marketable securities.

To know the operating cash requirements, cash flow projections have to be made by a firm. There is hardly a perfect matching between cash inflows and outflows during the period. With the short-term cash forecasts, however, the financial manager is enabled to adjust these differences in favour of the firm. One of the significant roles of the monthly cash flow or short-term forecasts is to pinpoint when the money will be needed and when it can be repaid. If monthly cash flow forecasts prepare properly, then it will not be difficult for the financial manager to negotiate short-term financing arrangements with banks. In that case, convince to the bankers about the ability of the management to run its business would be easier. Further, monthly or short-term cash flow forecasts is to help in managing the investment of surplus cash in marketable securities. Efficiently designed monthly cash flow forecast helps a firm to: (i) select securities with appropriate maturities and reasonable risk, (ii) avoid over and under-investing and (iii) maximize profits by investing idle money.

Monthly or Short-term Cash Flow Forecasting Methods

Two most commonly used methods of monthly or short-term cash forecasting are:

(i) Receipt and disbursements method

(ii) Adjusted net income method.

(i) Receipt and Disbursements Method

This method is generally used to forecast for limited periods, such as a week or a month. Under this method, the cash flows can be compared with budgeted income and expense items. The salient objectives of this method are to summarize the cash flows during a pre-determined period, may be, monthly or quarterly. In case of some companies where each item of income and expense involves flow of cash, this method is favoured to keep a close control over cash.

The benefits of the receipt and disbursements methods are:

- It gives a complete picture of all the items of expected cash flows.
- It is a sound tool of managing daily cash operations.

This method, however, suffers from the following limitations:

Its reliability is reduced because of the uncertainty of cash forecasts. For example, collections may be delayed, or unanticipated demands may cause large disbursements.

(ii) Adjusted Net Income Method

Adjusted net income method is sometimes called the sources and uses approach. This method is preferred for longer durations ranging from a few months to a year. This is a cash budgeting method that determines an organization's cash flow by adjusting its net earnings on a cash basis. This method is appropriate in showing a company's working capital and future financing needs. This method can be applied only in situations when a company's net income is calculated for a period longer than half a year. However, two objectives of the adjusted net income approach are: (i) to project the company's need for cash at a future date and (ii) to show whether the company can generate the required funds internally, and if not, how much will have to be borrowed or raised in the capital market.

The benefits of the adjusted net income method are:

- It highlights the movements in the working capital items, and thus, helps to keep a control on a firm's working capital.
- It helps in anticipating a firm's financial requirements.

The major limitation of this method is:

- It fails to trace cash flows, and therefore, its utility in controlling daily cash operations is limited

• Maximum Permissible Bank Finance (MPBF) Calculation

Maximum Permissible Banking Finance (MPBF) in Indian Banking Sector is mainly a method of working capital assessment. The Reserve Bank of India (RBI) has been trying, particularly from the mid-1960s onwards, to bring a measure of discipline among industrial borrowers and

to redirect credit to the priority sectors of the economy. From time to time, the RBI issues guidelines and directives relating to matters like the norms for inventory and receivables, the MPBF, the form of assistance, the information and reporting system, and the credit monitoring mechanism. The important guidelines and directives have stemmed from the recommendations of various committees such as the Dehejia Committee, the Tandon Committee and the Chore Committee.

However, in recent years, in the wake of financial liberalization, the RBI has given freedom to the boards of individual banks in all matters relating to working capital financing.

From the mid-eighties onwards, special committees were set up by the RBI to prescribe norms for several other industries and revise norms for some industries covered by the Tandon Committee.

Dehejia Committee Report

The committee analysed the deficiencies of the then existing system of bank lending, based on cash credit system in 1968. The committee concluded that the diversion of bank finance for the acquisition of fixed and other noncurrent assets was made possible by the banker's fixation on security under the cash credit lending system. The committee found that while theoretically commercial bank lending was for short-term purposes, in actual practice, it was not so. According to their report, a large part of bank lending was really long-term in character, and was repayable on demand only in name.

The major weaknesses in the then existing system of working finance to industry, as pointed out by the Dehejia Committee and again identified by the Tandon Committee, are summarized below:

(i) It is the borrower who decides how much he would borrow; the banker does not decide how much he would lend and is, therefore, not in a position to do credit planning.

(ii) The bank credit is treated as the first source of finance and not as supplementary to other sources of finance.

(iii) The amount of credit extended is based on the amount of security available, not on the level of operations of borrower.

(iv) Security does not by itself ensure safety of bank funds since all bad and sticky advances are secured advances; safety essentially lies in the efficient follow-up of the industrial operations of the borrower.

Tandon Committee Report

The recommendations of the Dehejia Committee regarding plugging the loop holes in the existing credit system and change in the lending policy of the banks remained unimplemented. As a result, banks 'oversold credit' and large part of it remained unutilized. There was no exchange of information between the banks and the customer. The Reserve Bank in July, 1974,

formed a committee under the chairmanship of Shri P.L. Tandon, then Chairman of the Punjab National Bank to review the system.

The recommendations of the Tandon Committee are based on the following notions:

(a) Operating plan: The borrower should indicate the likely demand for credit. So, the borrower should draw operating plans for the ensuing year and supply them to the banker. This procedure will facilitate credit planning at the banks' level.

(b) Production-based financing: The banker should finance only the genuine production needs of the borrower. The borrower should maintain reasonable levels of inventory and receivables; he should hold just enough to carry on his target production.

(c) Partial bank financing: The working capital needs of the borrower cannot be entirely financed by the banker. The banker will finance only a reasonable part of it; for the remaining the borrower should depend upon his own funds, generated internally and externally.

Major recommendations of the committee are being summarized below:

(i) Inventory and Receivable Norms: The Committee pointed out that the borrower should be allowed to hold only a reasonable level of current assets, particularly inventory and receivables. Only the normal inventory, based on a production plan, lead time of supplies, economic ordering levels and reasonable factor of safety, should be financed by the banker. The committee suggested that for fifteen major industries excluding heavy engineering and highly seasonal industries, like sugar, the norms were applied to all industrial borrowers including small scale industries with aggregate limits from the banking system in excess of `10 lakh.

(ii) Lending norms: The Committee felt that the main function of a banker as a lender was to supplement the borrower's resources to carry an acceptable level of current assets. This norm highlighted the following issues such as: (a) the level of current assets must be reasonable and based on norms, (b) a part of the fund requirements for carrying current assets must be financed from long-term funds comprising owned funds and term borrowings, including other non-current liabilities. The banker was required to finance only a part of the working capital gap; the other part was to be financed by the borrower from the long-term sources. Working capital gap is defined as current assets minus current liabilities, excluding bank borrowings. Current assets will be taken at estimated values or values as per the Tandon Committee norms, whichever is lower. Current assets will consist of inventory and receivables, referred to as chargeable current assets (CCA) and other current assets (OCA).

(iii) Maximum Permissible Bank Finance (MPBF): The Committee suggested three methods of determining the permissible level of bank borrowings. These three methods are discussed later on.

(iv) Style of credit: The Committee reviewed the deficiencies of lending system also suggested a change in the style of bank lending. The Committee recommended the bifurcation of total credit limit into fixed and fluctuating parts. The fixed component was to be treated as a demand loan for the year representing the minimum level of borrowings, which the borrower expected to use throughout the year. The fluctuating component was to be taken care of by a demand cash credit. The cash credit portion could be partly used by way of bills.

(v) Information system: Another important recommendation of the Tandon Committee related to the flow of information from the borrower to the bank. The Committee argued for the greater flow of information, both for operational purposes and for the purpose of supervision and follow-up credit. Information was sought to be provided in three loans—operating statement, quarterly budget and funds flow statement.

The Tandon Committee Report has been widely debated and criticized. At the same time, it is true that bankers found difficulties in implementing the committee's recommendations. However, the Tandon Committee report has brought about a perceptible change in the outlook and attitude of both the bankers and their customers. The report has helped in bringing a financial discipline through a balanced and integrated scheme for bank lending.

Methods of Maximum Permissible Bank Finance (MPBF)

The Tandon Committee suggested three methods of assessing Maximum Permissible Bank Finance which are discussed below:

First Method

In this method, the borrower will contribute 25 % of the working capital gap; the remaining 75 % can be financed from bank borrowings. This method will give a minimum current ratio of 1:1.

Thus, the MPBF: 0.75 (CA-CL)-CL

Current Ratio will be: CR: $\frac{CA}{(CL+MPBF)}$

Current Ratio will be: CR:

Second Method

In the second method, the borrower will contribute 25% of the total current assets. The remaining of the working capital gap (i.e., the working capital gap less the borrower's contribution) can be bridged from the bank borrowings. This method will give a current ratio of 1.3:1.

The permissible bank borrowings with an example of above two methods are shown below:

Particulars	1st Method (₹)	2nd Method (₹)
Current Assets (CA)	100	100
Current liabilities, excluding bank borrowings, (CL)	20	20
Working Capital Gap (CA-CL) [A-B]	80	80
Borrower's Contribution	20 25% of (C)	25 25% of (A)
Permissible Bank Finance (C-D)	60	55

Third Method

In the third method, borrower will contribute 100 % of core assets, as defined and 25 % of the balance of current assets. The remaining of the working capital gap can be met from the borrowings. This method will further strengthen the current ratio.

After introducing the new system of lending, in some cases the net working capital was negative while in others it was equal to 25% of working capital gap. Then the Committee allowed this deficiency to be financed, in addition to the permissible bank finance, by banks. However, it was regularized over a period of time depending upon the funds generating capacity and ability of the borrower. This type of credit facility was called working capital term loan. Generally, the working capital term loan was not allowed to be raised in the subsequent years. For additional credit requirement arising in subsequent years, the borrower's long-term sources were required to provide 25% of the additional working capital gap. The banks could grant regular term loans against fixed assets.

QUESTION 1

Compute "Maximum Bank Borrowings" permissible under Method I, II & III of Tandon Committee norms from the following figures and comment on each method.

Current Liabilities	₹ in lakh	Current Assets	₹ in lakh
Creditors for purchases 200		Raw materials	400
Other current liabilities 100	300	Work in progress	40
Bank borrowings including bills discounted with bankers	400	Finished goods	180
		Receivable including bills discounted with bankers	100
		Other current assets	20
Total	700	Total	740

Assume core current assets are ₹190 lakhs.

Chore Committee Report

In April 1979, the Reserve Bank of India constituted a working group to review the system of cash credit under the chairmanship of Mr. K.B. Chore. The main terms of reference for the group were to review the cash credit system and suggest modifications and/or alternate types of credit facilities to promote greater credit discipline and relate credit limits to production. The major recommendations of the Committee are as follows:

(i) Reduced dependence on bank credit: Borrowers should contribute more funds to finance their working capital requirements, and reduce dependence on bank credit. Therefore, the group recommended firms to be placed in the second method of lending as explained by the Tandon Committee. In case the borrower was unable to comply with this requirement immediately, he would be granted excess borrowing in the form of working capital term loan (WCTL). WCTL should be repaid in semi-annual instalments for a period not exceeding five years and at a higher rate of interest than under the cash credit system would be charged.

(ii) Credit limit to be separated into 'peak level' and 'normal non-peak level' limits: Banks should appraise and fix separate limits for the 'peak level' and 'normal non-peak level' credit requirements for all borrowers in excess of ₹10 lakh, indicating the relevant periods. Within the sanctioned limits for these two periods the borrower should indicate in advance, his need for funds during a quarter. Any deviation in utilization beyond 10% tolerance limit should be treated as an irregularity and appropriate action should be taken.

(iii) Existing lending system to continue: The existing system of three types of lending such as Cash credit, loans and bills should continue. Cash credit system should, however, be replaced by loan and bills wherever possible. Cash credit accounts in case of large borrowers should be scrutinized once in a year. Bifurcation of cash credit account into demand loan and fluctuating cash credit component, practiced as per the Tandon Committee recommendation should discontinue. Advances against book debts should be converted to bills wherever possible and at least 50% of the cash credit limit utilized for financing purchase of raw material inventory should also be changed to this bill system.

(iv) Information system: The discipline relating to the submission of quarterly statements to be obtained from the borrowers, under the existing system, should be strictly adhered to in respect of all borrowers having working capital limits of ₹50 lakhs and over from the banking system.

- **Commercial Paper**

Commercial Paper (CP) is an unsecured money market instrument issued in the form of a promissory note. However, the important features of commercial paper are as follows:

(i) In India, the maturity period of commercial paper usually ranges from 91 days to 360 days.

(ii) Commercial paper is sold at a discount from its face value and redeemed at its face value. Hence the implicit interest rate is a function of the size of the discount and the period of maturity.

(iii) Commercial paper is either directly placed with investors who intend holding it till its maturity.

Hence, there is no well-developed secondary market for commercial paper.

Commercial Paper: Eligibility, Use and Maturity

Eligibility and Use

In India, the Reserve Bank of India regulates the issue of commercial papers. Those companies are allowed to issue commercial papers which have a tangible net worth of ´5 crore, i.e., ´50 million, the fund based working capital limit of not less than ´5 crore, and the firm should be listed and it is required to obtain necessary credit rating from credit rating agencies. The minimum current ratio should be 1.33:1. All issue expenses will be borne by the issuing company. These norms imply that only the large, highly rated companies are able to operate in the commercial paper market in India.

The Vaghul Working Group had recommended that the size of a single issue should be at least ´1 crore and the size of each commercial paper should not be less than ´5 lakh. The RBI had provided for the minimum issue of ´25 lakh (rather than ´5 lakh as recommended by the Vaghul Committee)

Maturity Period

As per the RBI Guidelines, initially, corporates were permitted to issue CP with a maturity between a minimum of three months and a maximum of upto six months from the date of issue. Since October 18, 1993, the maximum maturity period of CP was increased to less than one year. Subsequently, the minimum maturity period had been reduced from time to time and since May 25, 1998, it was reduced to 15 days. Presently, CP can be issued for maturity period between a minimum of 15 days and a maximum upto one year from the date of issue.

In USA, there is no prescription of minimum and maximum maturity period of CP but for practical matter, it is limited upto 270 days. However, 1-day to 7-day CPs are very popular of which 1-day CP constitutes the substantial component of the CP market. In UK also, there is no restriction but in France, initial maturity ranges from 1 day to upto 1 year.

Cost

Though the Reserve Bank of India regulates the issue of commercial paper, the market determines the interest rate. In USA, the interest rate on a commercial paper is a function of prime lending rate, maturity, credit-worthiness of the issuer and the rating of the paper provided by the rating agency.

In India, the cost of a CP will include the following components:

- Discount
- Rating charges
- Stamp duty
- Issuing and Paying Agent (IPA) charges

Interest rate on commercial paper is generally less than the bank borrowing rate. A firm does not pay interest on commercial paper rather sells it at a discount rate from face value. The yield of commercial papers can be calculated as follows:

$$\text{Interest yield} = \frac{\text{Face value - Sale price}}{\text{Sale price}} \times \frac{360 \text{ Days}}{120 \text{ Days}}$$

Suppose a firm sells 120-day commercial paper (₹100 face value) for ₹96 net, the interest yield will be 12.5%.

$$\text{Interest yield} = \frac{₹100 - ₹96}{₹96} \times \frac{360 \text{ Days}}{120 \text{ Days}}$$

$$= 0.125$$

$$= 12.5\%$$

Interest on CP is tax deductible: therefore, the after-tax interest will be less. Assuming that the firm's marginal tax rate is 35 %, the after-tax interest yield is 8.13%.

Therefore, interest yield after tax = 0.125 (1 – 0.35) = 0.0813 or 8.13%.

Question 2

XYZ Ltd. issued commercial paper as per the following details:

Date of issue	17th December, 2022
Date of Maturity	17th March, 2022
Size of issue	₹10 crore
No. of Days	90 Days
Interest rate	11.25%
Face value	₹100

What was the net amount received by the company on issue of commercial paper?

Export Financing – Pre-Shipment and Post-Shipment Packing Credit

Export finance is a process of funding the exporters to facilitate their business in the global market. In simple words, it is a cash flow solution for exporters to cater to their production and other global transaction requirements including working capital. International businessmen require export finance when they want to assure the affordability of the production of goods along with an assurance of getting paid on-time while sending goods to another country.

Importance of Export Finance

Export finance services help the exporters mitigate their risk of default of payment on the hands of the importers as well as fills the gap between manufacturers and overseas suppliers. The exporter agrees on the payment terms of the importer and ships the goods overseas but the payment is at risk to be received later. Export finance allows the businesses to sell their goods & services to another country and enables them to get access to working capital requirements before the importer pays the amount for the purchased products.

There are several other reasons to get export finance such as:

- To establish a new export business with secured financial support;
- To cater to your business's working capital requirements;
- To expand your business in the global market etc.

Types of Export Finance/Credit

Export finance can broadly be classified under tow heads:

Pre-shipment Finance:

This includes –

(i) Packing Credit, and

(ii) Advance against receivables from the Government like duty back, international price reimbursement scheme (IPRS) etc.

Post-shipment Finance:

This consists of -

(i) Purchased/discounted/negotiated of export documents,

(ii) Advance against bills sent on collection basis,

(iii) Advance against exports on consignment basis,

(iv) Advance against indrawn balances, and

(v) Advance against receivables form the Government like duty draw back etc.

Pre-shipment Export Credit or Packing Credit

'Pre-shipment / Packing Credit' means any loan or advance granted or any other credit provided by a bank to an exporter for financing the purchase, processing, manufacturing or packing of goods prior to shipment / working capital expenses towards rendering of services on the basis of letter of credit opened in his favour or in favour of some other person, by an overseas buyer or a confirmed and irrevocable order for the export of goods / services from India or any other evidence of an order for export from India having been placed on the exporter or some other person, unless lodgement of export orders or letter of credit with the bank has been waived. Packing credit is sanctioned/granted on the basis of letter of credit or a confirmed and irrevocable order for the export of goods / services from India or any other evidence of an order for export from India.

Pre-shipment Finance is issued by a financial institution when the seller wants the payment of the goods before shipment. The main objectives behind pre-shipment finance or pre-export finance are to enable exporter to:

Procure raw materials.

- Carry out manufacturing process.
- Provide a secure warehouse for goods and raw materials.
- Process and pack the goods.
- Ship the goods to the buyers.
- Meet other financial cost of the business.

Requirement of getting Packing Credit

This facility is provided to an exporter who satisfies the following criteria

- A ten-digit importer/exporter code number allotted by DGFT.
- Exporter should not be in the caution list of RBI.
- If the goods to be exported are not under OGL (Open General Licence), the exporter should have the required license /quota permit to export the goods.

Packing credit facility can be provided to an exporter on production of the following evidences to the bank:

- Formal application for release the packing credit with undertaking to the effect that the exporter would be ship the goods within stipulated due date and submit the relevant shipping documents to the banks within prescribed time limit.
- Firm order or irrevocable L/C or original cable / fax / telex message exchange between the exporter and the buyer.
- Licence issued by DGFT if the goods to be exported fall under the restricted or canalized category. If the item falls under quota system, proper quota allotment proof needs to be submitted

The confirmed order received from the overseas buyer should reveal the information about the full name and address of the overseas buyer, description quantity and value of goods (FOB or CIF), destination port and the last date of payment.

Eligibility

Pre shipment credit is only issued to that exporter who has the export order in his own name. However, as an exception, financial institution can also grant credit to a third-party manufacturer or supplier of goods who does not have export orders in their own name.

In this case some of the responsibilities of meeting the export requirements have been out sourced to them by the main exporter. In other cases where the export order is divided between two more than two exporters, pre shipment credit can be shared between them.

Post-shipment Export Finance

Post-shipment finance or credit means any loan or advance granted or any other credit provided by a bank to an exporter of goods / services from India from the date of extending credit after shipment of goods / rendering of services to the date of realisation of export proceeds as per the period of realization prescribed by Reserve Bank of India (RBI). This includes any loan or advance granted to an exporter, in consideration of, or on the security of any duty drawback allowed by the Government from time to time. As per extant guidelines of RBI, the period prescribed for realisation of export proceeds is 12 months from the date of shipment.

Post-shipment advance can mainly take the form of -

(i) Export bills purchased / discounted/negotiated.

(ii) Advances against bills for collection.

(iii) Advances against duty drawback receivable from Government

(v) Advance against exports on consignment basis

(vi) Advance against undrawn balances

(i) Export bills purchased/discounted/negotiated In the first two instances, the exporter submits the bill of lading or airway bill, commercial invoice, packing list, certificate of origin, purchase order and other necessary export documents with the bank. The bank extends post-shipment credit at a concessional interest rate by purchasing or discounting these bills. In the third option (export bills negotiated), finance is provided under a letter of credit – a document issued by the importer's bank (called an issuing bank) as a promise to pay the exporter an agreed upon sum of money. Post-shipment credit under a letter of credit is considered more secure as the issuing bank guarantees payment to the lending bank.

(ii) Advances against bills for collection Instead of submitting export bills for discount or purchase, the exporter may arrange for them to be sent to the overseas buyer for collection of payment. In such a scenario, the bank grants the exporter an advance against a portion of the collection bills. When payment is received from the importer, it is credited as post shipment credit. Exporters use this option when there are discrepancies in bills drawn under the letter of credit.

(iii) Advances against duty drawback receivable from Government

In India, duty drawback is a government scheme that supports exports by offering exporters a rebate on customs and excise duties charged on imported or excisable material used in the production of goods meant for export. It is disbursed by the customs department on submission of export documents. Banks offer credit against such duty drawback receivable from the government after confirming the exporter's eligibility. The lending bank must also be authorized to receive the claim amount from the concerned government authority.

(iv) Advance against export on consignment basis

Banks also extend post-shipment credit against exports made on consignment basis – which means the exporter ships the goods to an agent, who sells the goods and makes remittances to the exporter as and when the goods are sold. The exporter receives payment only for the quantity that gets sold. Precious and semiprecious stones, tea, coffee, and wool are examples of goods exported on consignment basis. To avail of post-shipment credit against such exports, the exporter must provide an undertaking that the sales proceeds will be delivered by a specified date. The advance is adjusted against the proceeds realized later.

(v) Advance against undrawn balance

In some cases, exporters leave a small portion of the invoice value undrawn for final adjustments towards differences in exchange rates, consignment weight, quality factors, and so on. This undrawn balance is usually 10 % of the total invoice value. Banks offer advances against undrawn balances provided the exporter gives an undertaking that they will make good on the balance amount within six months of the payment due date or date of shipment, whichever is earlier. The lender also takes into account the importer's track record before making such an advance.

Who can get post-shipment finance?

- All kinds of exporters, including merchant exporters, manufacturer exporters, export houses, trading houses, and manufacturers who supply to merchant exporters, export houses and trading houses.
- Both individuals as well as companies involved in export.
- Any other legal entity engaged in the export of goods.

What documents are required for post-shipment credit?

An exporter will be expected to submit shipping documents that serve as evidence that the goods have been shipped for export. These include:

- Bill of lading/airway bill
- Commercial invoice
- Packing list
- Certificate of origin
- Inspection certificate
- Insurance certificate
- Import Export Code (IEC) certificate
- Additionally, an original copy of the letter of credit is mandatory if credit has been availed under the letter of credit

Apart from these documents, the lender might demand additional documents depending on the type of post-shipment credit availed.