

Formulas - CAFM.

Topic :- Time Value Of Money

* Formulas for finding ^{Calculating} the Future Value :-

=> Calculating Future Value is known as Compounding.

1) Simple Interest Method :-

- Simple Interest = PNR , where P = Principal, R = Rate & N = Time period.

- Future Value = Simple Interest + Present Value

- Future Value = $P + PNR$

$$= P(1 + NR)$$

2) Compound Interest Method :-

[a] Single Cash Flows

- Future Value = $P(1 + r)^n$, where P = Present Value, r = Rate & n = Period in years. ← Compounded Annually

- Compounded Semi-Annually (Half-yearly / Six-Monthly)
↳ Future Value = $P(1 + \frac{r}{2})^{n \times 2}$

- Compounded Quarterly

↳ Future Value = $P(1 + \frac{r}{4})^{n \times 4}$

- Compounded Monthly

↳ Future Value = $P(1 + \frac{r}{12})^{n \times 12}$

- Compounded Weekly

↳ Future Value = $P(1 + \frac{r}{52})^{n \times 52}$

- Compounded Daily
 \hookrightarrow Future Value = $P(1 + \frac{r}{365})^{n \times 365}$

[b] Multiple Cash Flows:-

- Table:-

Year	Amount(₹)	No. of yr. int. earned	F.V. = $P(1+r)^n$

[c] Annuity:-

- Whenever same amount at same ^{intervals} ~~intervals~~ - Annuity
- Whenever diff. amount at diff. intervals - Multiple Cash Flows.
- * When annuity is at the beginning of the period:-
 • Future Value = $A \left[\frac{(1+r)^n - 1}{r} \right] (1+r)$, where
 $\hookrightarrow A = \text{Annuity}$

- * When annuity is at the end of the period:-
 • Future Value = $A \left[\frac{(1+r)^n - 1}{r} \right]$

\Rightarrow The above Annuity formulas are for Annual Compounding. For Half-yearly, r is to be divided by 2, n is to be multiplied by 2 i.e. F.V. = $A \left[\frac{(1 + \frac{r}{2})^{n \times 2} - 1}{\frac{r}{2}} \right]$

→ Similarly, it can be done for Quarterly, Monthly, Weekly & Daily as well.

- F.V. = Compound Amount
- Compound Interest = Compound Amount - Present Value

* Calci Steps:-

[a] Whenever a number has degree $\frac{1}{x}$, the steps in calci are as follows:- (Assuming base as y)

- $y\sqrt{\quad}$ (12 times) → no. → 1 time, root → 12 times
- -1
- x Power (i.e. $\frac{1}{x}$)
- +1
- $x = \square \rightarrow$ (12 times)

[b] $\frac{1}{y}\sqrt{\quad}$

- $x\sqrt{\quad}$ (12 times) → no. → 1 time, root → 12 times
- -1
- \div Power (i.e. $\frac{1}{y}$)
- +1
- $x = \square \rightarrow$ (12 times)

[c] whenever a number is raised to n times,
in calci [=] is to be pressed for $n-1$ times.

Foreg:- $(1.1)^7$, then $1.1 \times \text{=====}$
↓

After doing such, the no. of steps showing
in Calci should be power + 1. i.e. 8 in the
above example.

[d] For eg:- $1.21 = (1.1)^n \rightarrow n$ is to be found
Then, in calci, $1.1 \times [=]$ is to be pressed ~~until~~ ^{until}
 1.21 comes + 1 step = n . i.e. after pressing [=]
for [] time, 1.21 comes, then the $n = 1 + 1 = 2$.

* Points to Remember:-

(i) If any no. is to be converted into %, it should be
multiplied with 100. If % is to be converted into
no. / figure, it should be divided by 100.

(ii) ~~Compounded~~ Semi-Annually
Half-yearly
Six-monthly } Same things.

(iii) If the question asks for the answer as
approximately, then the value nearest to it is to

be taken.

(iv) Any number raised to 0 is equal to 1.

(v) Whenever \rightarrow Amt. equal, Period equal \rightarrow Annuity

(vi) If there is power x on one side, after transferring it to another side of $\boxed{=}$, it becomes $\frac{1}{x}$.

(vii) If it is like $(1+r)^x$, then x can be transferred, but if it is like $1+(1+r)^x$, then x cannot be transferred.

(viii) Unless otherwise Specifically Given, assume Compounding is Annually.

~~(ix)~~

(ix) Unless otherwise Specifically Given, assume that the question is of Compound Interest Method.

(x) Unless otherwise Specifically Given, assume Annuity is at the end of the period.

(xi) Unless otherwise Specifically Given, assume rate is given as per annum.

(xii) Whenever, the no. of weeks in year is given, calculate the answer taking it only and not 52, similarly, it is to be done for months and days as well.

* Formulas for Calculating the Present Value:-

* Annuity:- (Finite) $A = \text{Annuity}$

• $P.V. = \frac{A}{r} \times P.V.A.F.$ [P.V.A.F. = Present Value Annuity Factor]

• $\rightarrow P.V.A.F. = \frac{1 - \frac{1}{(1+r\%)^n}}{r}$ [R = rate of interest]

For eg. if 2%, then, $1 + 2\% = 1.02$

$\frac{1}{1+(R\%)^{\text{times}}}$ = $\frac{CIT/M + MRC}{\text{specific yrs.}}$ [times = n, i.e. no. of yrs.]

* Single Cash Flows:-

• $P.V. = F.V. \times P.V.F.$ [P.V.F. = Present Value Factor]

• $\rightarrow P.V.F. = \frac{1}{(1+(R\%)^{\text{times}})}$ [times = n yrs.]

* Multiple Cash Flows:-

Table:-	A yrs.	B Cash Flow	C P.V.F.	D $P.V. = B \times C$

* Annuity:- [Infinite]

• $P.V. = \frac{A}{r}$ [A = Annuity, R = rate]

• $P.V. = \frac{A}{r-g}$ [g = growth rate, if any, given]

* Effective rate of interest:-

↳ If the rate of interest is compounded more than once in a year, then its equivalent annual rate will be effective rate of interest.

→ Formula:- $E = \left(1 + \frac{i}{m}\right)^m - 1$ [E = Eff. rate of int.,
i = rate of int.,
m = frequency of
↓ compounding.
For: e.g. semi-annually = 2]

* Points to Remember:-

1. Whenever, time period for Annuity is given, it is finite Annuity and whenever, time period is not given, it is Infinite Annuity.

Topic:- Dividend Decisions

* Formulas:-

• Walter's Model:- $P_0 = \frac{D + \frac{R(E-D)}{K_e}}{K_e}$

, where

D = Dividend

R = Rate

E = EPS

K_e = Cost of Equity.

• Gordon's Model:- $P_0 = \frac{E(1-b)}{K_e - g}$

, where

E = EPS

b = Retention Ratio

K_e = Cost of Equity

g = Growth Rate

• Revised Gordon's Model:- $P_0 = \frac{D_1}{K_e - g}$

• M.M.'s Model:- $P_0 = \frac{D_1 + P_1}{1 + K_e}$

$$\bullet \text{ DPS} = \text{Face Value} \times \text{Dividend Rate}$$

$$\bullet \text{ Dividend Rate} = \frac{\text{Dividend Per Share}}{\text{Face Value}}$$

$$\bullet \text{ Dividend Yield} = \frac{\text{Dividend Per Share}}{\text{Market Price}}$$

$$\bullet \text{ Earnings Per Share (EPS)} = \frac{\text{Net Profit}}{\text{No. of shares}}$$

$$\bullet \text{ Earning Yield} = \frac{\text{Earnings Per Share}}{\text{Market Price}}$$

$$\bullet \text{ Payout Ratio} = \frac{\text{Dividend Per Share}}{\text{Earnings Per Share}}$$

$$\bullet \text{ P/E Ratio} :- \frac{\text{Market Price Per Share}}{\text{Earnings Per Share}}$$

$$\bullet \text{ K/e} = \frac{\text{Earning yield}}{\text{P/E Ratio}}$$

$$\bullet \text{ Growth Rate} = \text{Retention Ratio (b)} \times \text{Rate (r)}$$

$$\bullet \text{ Dividend} = \text{EPS} \times \text{Dividend Payout Ratio}$$

$$\bullet \text{ EPS} = \frac{\text{Profit before tax}}{(-) \text{ Tax}}$$

Profit available for shareholders

(-) Pref. dividend

Profit available for equity shareholders

(\div) No. of equity shares

Earnings Per Share (EPS)

- Dividend = $E(1-b)$
- Dividend Payout Ratio = $1 - \text{Retention Ratio}$
- Retention Ratio = $1 - \text{Dividend Payout Ratio}$
- Net worth = No. of shares \times Price per share

* Points to remember :-

1. R = Rate of return / Return on Investment
2. K_e = Cost of Equity / Cost of Capital / Expected Rate of Return of Shareholders
3. Growing firm :- $K_e < r$
 ↳ Optimum Payout Ratio :- 0%.
4. Stable firm :- $K_e = r$
 ↳ Optimum Payout Ratio :- Any Payout Ratio.
5. Declining firm :- $K_e > r$
 ↳ Optimum Payout Ratio :- 100%.
6. D_1 → Co. is thinking / contemplating to declare div.
 → Div. @ end of period
 → Co. will declare
 → Future div.
 → Expected div.
 → Div. at end of period 1.
7. D_0 → Current dividend
 → Co. had paid dividend
 → Today's dividend / Previous dividend.

Topic :- Cost Of Capital

* Formulas :-

1. K_d (Cost of Debt) (~~tax~~^{before} tax) (Irredeemable)

$$L \rightarrow K_d = \frac{\text{Interest}}{\text{Net Proceeds}}$$

2. K_d (~~tax~~^{after} tax) (Irredeemable)

$$L \rightarrow K_d = \frac{I(1-t)}{\text{Net Proceeds}}$$

3. K_d (After tax) (~~no~~ Redeemable)

$$L \rightarrow K_d = \frac{I(1-t) + \left[\frac{RV - NP}{n} \right]}{\left[\frac{RV + NP}{2} \right]}$$

$$\left[\frac{RV + NP}{2} \right]$$

4. K_d (Before tax) (Redeemable)

$$L \rightarrow K_d = \frac{I + \left[\frac{RV - NP}{n} \right]}{\left[\frac{RV + NP}{2} \right]}$$

$$\left[\frac{RV + NP}{2} \right]$$

5. Net Proceeds = Face Value + Premium (-) Discount
(-) Issue Expenses.

6. $K_p \rightarrow$ Cost of Pref. Shares

\rightarrow (After tax) (~~Free~~ Irredeemable)

$$K_p = \frac{\text{Pref. Dividend} + \text{Div. Dis. Tax. (if given)}^{\text{any}}}{\text{Net Proceeds}}$$

7. K_p (Before tax) (Irredeemable)

$$K_p = \frac{K_p(\text{After tax})}{1-t}$$

8. K_p (After tax) (~~Free~~ Redeemable)

$$K_p = \frac{\text{Pref. Div.} + \text{DDT (if given)}^{\text{any}} + \left(\frac{RV - NP}{n} \right)}{\left(\frac{RV + NP}{2} \right)}$$

9. K_p (Before tax) (Redeemable)

$$K_p = \frac{K_p(\text{After tax})}{1-t}$$

10. K_e (Cost of Equity) ($g \rightarrow$ if any, given)

$$\rightarrow \text{As per CAPM model, } K_e = R_f + \beta(R_m - R_f)$$

$$\rightarrow \text{As per Div. Price approach, } K_e = \frac{D_1}{P_0} + g$$

$$\rightarrow \text{As per Earning Price approach, } K_e = \frac{EPS}{P_0} + g$$

$$\rightarrow \text{As per Realised Yield approach, } K_e = \frac{D_1 + (P_1 - P_0)}{P_0} + g$$

$$11. K_e(\text{Before Tax}) = \frac{K_e(\text{After Tax})}{1-t}$$

12. K_{RE} (After Tax) \rightarrow Cost of Retained Earnings

$$\hookrightarrow K_{RE} = \frac{D(1-t_p)(1-b_g)}{MPS(1-b_g)}$$

13. Overall Cost of Capital / WACC

$$\hookrightarrow WACC = \frac{\sum \text{Weight} \times \text{Cost}}{\sum \text{Weight}}$$

$$14. D_1 = D_0(1+g)$$

$$15. MPS/P_0 = \frac{\text{Owners' funds}}{\text{No. of shares}}$$

$$16. \text{Owners' funds} = \text{ESC} + \text{SPA} + \text{R.E.} - \text{Losses}$$

$$17. K_f(\text{Cost of term loan}) = \frac{I(1-t)}{N.P.}$$

$$18. P_0 = \text{Net Proceeds} \text{ Proceeds}$$

$$19. \text{Net Worth per Share} = \frac{\text{Asset} - \text{Liability}}{\text{No. of shares}}$$

$$20. K_0 = \text{Overall Cost of Capital.}$$

* Points to remember:-

1. Interest is always calculated on Face Value.
2. If Debenture Redemption period $\left\{ \begin{array}{l} \rightarrow \text{given} \rightarrow \text{Redeemable} \\ \rightarrow \text{not given} \\ \rightarrow \text{Irredeemable} \end{array} \right.$
3. Whenever, no information is given, Issue Expense % is taken of the Face Value.
4. Unless otherwise specifically given,
 $\left\{ \begin{array}{l} \rightarrow \text{Calculate Cost after tax.} \\ \rightarrow \text{Assume Redemption at par.} \end{array} \right.$
5. Dividend Price Approach = Dividend Growth Model = Dividend Cash Flow Model.
6. Highly sensitive \rightarrow 'Beta' more than 1.
7. $\beta = \text{Beta}$.
8. $R_m - R_f = \text{Premium of market}$
9. $R_m = \text{Market Rate of Return}$
10. $R_f = \text{Risk free Rate of Return}$
11. Beta of Market is always 1.
12. In $K_{RE} = \frac{D(1-t_p)(1-b_g)}{MPS(1-b_g)}$, $t_p = \text{Personal tax rate}$
 $b_g = \text{Personal CEI Tax rate}$
 $MPS = \text{Market Price}$

13. $P_0 = \text{Net Proceeds} / \text{MPS}$

14. Unless otherwise specifically given,

$$K_e = K_{re}$$

15. If DPS not given, assume $\text{DPS} = \text{EPS}$.

16. Unless otherwise specifically given, Tax Rate given is of company.

17. $K_0 = \text{Overall Cost of Capital}$.

18. $\text{WACC} = K_0 = \text{Weighted Average Cost of Capital}$

19. If no t_p & b_g is given, then $K_{re} = K_e$.

20. When WACC is to be calculated on Book

Value basis then it is to be calculated normally i.e. including Retained Earnings

but when it is to be calculated on ~~the~~

Market Value basis, then Retained Earnings

i.e. K_{re} is not to be included in K_0 .

21. Generally, $K_d < K_e$ (because of tax benefit.)

Topic :- Capital Structure

* Relevance Approach :-

1. Net Income Approach

Value of Firm = ? , $K_0 = ?$

A. EBIT.

B. (-) Int

C. (=) EBT

D. (-) Tax

E. (=) EAT

F. Debt (D)

G. $\text{Equity} = \frac{\text{EAT}}{K_e}$

H. Value of Firm = Debt + Equity

I. $K_0 = \frac{\text{EBIT}}{\text{Value of Firm}}$

* Irrelevance Approaches :-

1. Net Operating Income Approach :-

Value of Equity = ?

$K_e = ?$

A. EBIT

B. (-) Int.

C. (-) ~~P~~EBT

D. (-) Tax

E. (-) EAT

F. Debt

$$\text{Gr. Value of Firm} = \frac{\text{EBIT}}{K_0}$$

$$\text{M. Equity} = \text{Value of Firm} - \text{Debt}$$

$$\text{I. } K_e = \frac{\text{EAT}}{\text{Equity}}$$

2. M.M. Approach

$$\text{Value of firm} = \frac{\text{EBIT}}{k_0}$$

$$K_e = K_0 + \text{Risk premium}$$

OR

$$K_0 + [K_0 - k_d] \times \frac{\text{Debt}}{\text{Equity}}$$

* Relevance Approach:-

	Phase I (Low debt.)	Phase II (Moderate debt.)	Phase III (High debt.)
K_d	Constant	Constant	Increases
K_e	Constant	Increases	Increases @ highest rate
K_0	Decreases (like N.I. approach)	Constant (like N.O.I. app.)	Increases ($K_d \uparrow$) ($K_e \uparrow$)

* Leverage :-

1. Operational Leverage.

A. Sales

B. (-) Variable Cost

C. (=) Contribution

D. (-) Fixed Cost

E. (=) EBIT

F. Operational Leverage = $\frac{\text{Contribution}}{\text{EBIT / Opt. profit}}$

2. Financial Leverage.

A. EBIT

B. (-) Int.

C. (=) EBT

D. Financial Leverage = $\frac{\text{EBIT}}{\text{EBT}}$

3. a) Combined Leverage = Operational Leverage X Financial Leverage.

3. b) Combined leverage

A. Sales

B. (-) Variable Cost

C. (=) Contribution

D. (-) Fixed Cost

E. (=) EBIT

F. (-) Int.

G. (=) EBT

$$H. \text{ Combined leverage} = \frac{\text{Contribution}}{\text{EBT}}$$

4. Working Capital Leverage

↳

Current Assets

Total Assets + Δ Change in Current Assets

* Financial Break Even Point :-

⇒ It is that level of EBIT when EPS is 0.

$$\text{Financial Break Even Point} = \text{Interest} + \frac{\text{Preference Dividend}}{1-t}$$

* EPS Indifference Point:-

↳ It is that level of EBIT when even at 2 different plans, EPS is the same.

EPS Indifference Point:-

$$\frac{(EBIT - I_1)(1-t) - P.D._1}{N_1} = \frac{(EBIT - I_2)(1-t) - P.D._2}{N_2}$$

P.D. = Preference Dividend

N = No. of shares

coefficient

* Hamada's leveraged Beta:-

$$\beta_L = \beta_U [1 + (1-t)(D/E)], \text{ where}$$

β_L = Leveraged Beta

β_U = Unlevered Beta

D/E = Debt/Equity Ratio.

* M.M. Approach → Arbitrage Theory → firms with Same Capital Structure → Investor should buy the undervalued & sell the overvalued.

* Points to remember:-

1. Risk class = K_0
2. Δ change in Current Assets is always a % of Total Assets.

Topic :- Capital Budgeting

* Formulas :-

1. Payback Period \rightarrow in yrs.

$$\hookrightarrow \text{Previous yr.} + \left[\frac{\text{Project cost} - \text{Cumulative CFAT @ previous yr.}}{\text{Diff. b/w cumulative CFAT @ P.Y. \& Next yr.}} \right]$$

... CFAT = Cash Flow After Tax

2. Discounted Payback Period \rightarrow in yrs.

$$\hookrightarrow \text{P.Y.} + \left[\frac{\text{P.C.} - \text{Cum. CFAT @ P.V. @ P.Y.}}{\text{Diff. b/w cum. CFAT @ P.V. @ P.Y. \& Next yr.}} \right]$$

... P.C. = Project Cost

3. Payback Reciprocal of Pay back Period

$$\hookrightarrow \frac{1}{\text{Payback Period}}$$

4. Payback Reciprocal of Discounted Pay back Period

$$\hookrightarrow \frac{1}{\text{Discounted Payback Period}}$$

5. Net Present Value (NPV)

↳ P.V. of Cash Inflows - P.V. of Cash Outflows

6. Profitability Index / P.V. Index

↳ $\frac{\text{Total Present Value of Inflows}}{\text{Initial Investment}}$

7. Accounting Rate of Return (ARR)

↳ $\frac{\text{Avg. PAT}}{\text{Initial investment}} \times 100$

... PAT = Profit ^{After} Tax

8. Internal Rate of Return (IRR)

↳ $\text{Low Rate} + \left[\frac{\text{NPV @ Low Rate}}{\text{Diff. b/w NPV @ L.R \& H.R}} \times \text{Diff in Rates} \right]$

... LR = Low Rate
HR = High Rate.

9. If Low Rates and High Rates / Discounting Rate is not given in the question, then first, we have to divide Initial Investment by Avg. Cash flows i.e. Initial Investment.

Avg. Cash Flows

Eg. - 2.5. $\rightarrow \frac{10,000}{4000} = 2.5$ assumed

\Rightarrow After that, we have to search the rates among which the number found above will arrive and then solve the question by taking both rates as low rate and high rate respectively. It will be ~~calculated~~ known by calculating P.V.A.F. of the assumed rates.

Eg. 2.5 is calculated above so then, we assume 10, 15, 20 & 22 as rates of discounting & period is assumed 4 yrs. P.V.A.F. = ~~Present~~ Present Value Annuity factor.

$$\frac{1}{1.10} = \dots = G.T = 3.16$$

$$\frac{1}{1.15} = \dots = G.T = 2.85$$

$$\frac{1}{1.20} = \dots = G.T = 2.58$$

$$\frac{1}{1.22} = \dots = G.T = 2.49$$

Hence rate will be between 20% and 22%

rate will be among these two as the above ans. was 2.5 & it comes between these two.

10. Standard Deviation = $S.D = \sigma$

$$L > \sqrt{E(P \cdot D^2)}$$

$P =$ Probability - (A)

$D^2 =$ Deviation² - (B)

$$P \cdot D^2 = A \times B.$$

\Rightarrow Expected Cash Flow = Avg. of [Probability \times CFAT]

\Rightarrow Deviation = CFAT - Expected Cash Flow

11. Coefficient of Variation = $\frac{\sigma}{\text{Expected Profit}}$

12. Refer Pg. 329-330 of N.B. for Decision Tree Analysis Question.

* Points to remember:-

1. ARR, IRR, PBPR \rightarrow Higher is better.
2. PBP, DPBP \rightarrow Lower is better.
3. Increase in Rate results in Decrease in NPV.
4. Unadjusted Rate of Return = ARR.
5. Time Adjusted Rate of Return = IRR.
6. Depreciation, if not given \rightarrow $\frac{\text{Initial Inv.} - \text{Scrap Value}}{\text{Tenure}}$
7. Scrap value / Salvage Value is to be added in CFAT of last year.
8. Whenever Actual Scrap Value & Estimated Scrap Value both are given, Estimated Scrap Value is to be taken.
9. For ARR, PAT will be used.
10. For NPV, CFAT will be used.
11. $\text{PAT} + \text{Depreciation} = \text{CFAT}$
12. $\text{CFAT} - \text{Depreciation} = \text{PAT}$
13. Less S.D. = less risk,
More S.D. = more risk
14. P.V.F. of year 0 is always 1.

Topic:- Working Capital Management

⇒ when in Cash Budget question, amount payable is given like $\frac{1}{5}$ month, then

the $\frac{1}{5}$ th amount is to be paid in the

following month & $\frac{4}{5}$ th in the current

month.

1. Cash Budget ⇒

$$\begin{aligned} & \text{Opening Balance} \\ & + \text{Receipts} \\ & - \text{Payments} \\ & = \text{Closing Balance.} \end{aligned}$$

⇒ Closing Balance of one month is the opening balance of the following month.

2. Stock levels :-

⇒ Avg. level = $\frac{\text{Max. level} + \text{Min. level}}{2}$

$$3. \text{EOQ} = \sqrt{\frac{2AO}{C}} \dots \text{where}$$

EOQ = Economic Order Quantity

A = Annual Consumption

O = Ordering Cost

C = Carrying Cost

here per unit per annum

Note:- Ordering Cost is per order.

4. Carrying Cost per unit per annum

↳ Purchase Price x Storage & Carrying Cost %

5. No. of orders = $\frac{\text{Annual consumption}}{\text{Qty. ordered per order}}$

6. Analysis of proposals:-

Total Cost = Raw Material Cost
+ Ordering Cost
+ Carrying Cost.

7. Carrying Cost = $\frac{\text{Qty. ordered at a time}}{2} \times \text{CCPUPA}$

... CCPUPA = Carrying Cost per unit per annum

$$8. \text{ Ordering Cost} = \text{Order Cost per order} \times \text{Total no. of orders.}$$

$$9. \text{ Raw Material Cost} = \text{Annual Consumption} \times \text{Price per unit}$$

$$10. \text{ Re-order level} = \text{Max. Reorder Period} \times \text{Max. usage.}$$

$$11. \text{ Min. level} = \text{Re-order level} - [\text{Normal Usage} \times \text{Normal Re-order period}]$$

$$12. \text{ Max. level} = (\text{Reorder level} + \text{Reorder Quantity}) - (\text{Min. usage} \times \text{Min. Reorder Period})$$

$$13. \text{ Avg. level} = \text{Min. level} + \frac{1}{2} (\text{Reorder Quantity})$$

14. If normal consumption is given, take that and calculate the question but if it is not given,

$$\text{Normal Consumption} = \frac{\text{Min. Consumption} + \text{Max. Consumption}}{2}$$

$$15. \text{ Working Capital} = \text{Current Assets} - \text{Current Liabilities.}$$

Tandon Committee :-

1st method $\rightarrow \text{WC} = 75\% (\text{CA} - \text{CL})$

2nd method $\rightarrow \text{WC} = 75\% \text{ of } \text{CA} - \text{CL}$

16. Operating Cycle = $r + w + f + d - c$
↳ in days

... where

r = raw material conv.ⁿ period

w = W.I.P. conv.ⁿ period

f = ~~fin~~ Fin. goods conv.ⁿ period

d = Debtors collection period

c = Creditors payment period

17. Reorder Quantity = Economic Order Quantity.

18. Raw Material Conv.ⁿ period (r) in days.

↳ $\frac{\text{Raw Material in Stock}}{\text{Raw Material consumed p.a.}} \times 365 \text{ days.}$

19. WIP Conversion period (w) in days.

↳ $\frac{\text{WIP in Stock}}{\text{Annual Cost of production}} \times 365 \text{ days.}$

20. FG conv.ⁿ period (f) in days.

↳ $\frac{\text{FG in Stock}}{\text{Annual COGS}} \times 365 \text{ days.}$

21. Debtors Collection Period (d) in days

$$\hookrightarrow \frac{\text{Debtors}}{\text{Annual Sale}} \times 365 \text{ days.}$$

22. Creditors Payment Period (c) in days.

$$\hookrightarrow \frac{\text{Trade Creditors}}{\text{Annual Purchase}} \times 365 \text{ days.}$$

23. Working Capital = $\frac{\text{Operating Cost}}{365} \times \text{Opt. Cycle days.}$

24. RM Conv. period = $\frac{\text{RM in stock}}{\text{RM consumed per day}}$

25. Operating Cost = COGS

26. Gross Profit = Sales - COGS

27. Economic lot Size under Baumol's Model

$$\hookrightarrow \sqrt{\frac{2AF}{O}}$$

... where

A = Annual Cash Requirement

F = Conversion Cost per lot

O = Opportunity Cost

28. Receivables Management - E.P.S 2 on Pg. 379.

29. Danger Level = Avg. Consumption \times Lead time for emergency purchase

30. Safety Stock level = Ordering level - (avg. usage × re-order period)

31. Safety Stock level = (Max. usage - avg. usage) × lead time

32. Arbitrage Level → Q, on Pg. 381.

Topic: - Operational Aspect of financial Decision.

1. Sunk Cost = Historic Cost

2. Explicit Cost = Out of Pocket Cost

3. Unless Otherwise Specifically Given,

a. Variable Cost per unit is always constant.

b. Variable Cost in total is always changing.

c. Fixed Cost per unit is always changing.

d. Fixed Cost in total is always constant.

e. Any Direct expense will be considered Variable Cost.

4. Profit / Volume Ratio = $\frac{\text{Contribution}}{\text{Sales}} \times 100$

5. Breakeven Point (in ₹)

↳ $\frac{\text{F.C.}}{\text{P/V Ratio \%}}$

6. Breakeven Point (in units)

↳ $\frac{\text{F.C.}}{\text{Contri p.u.}}$

7. Margin of Safety Sale (in ₹)

↳ $\frac{\text{Profit}}{\text{P/V Ratio \%}}$

8. margin of Safety Sale (in unit)

$$\hookrightarrow \frac{\text{Profit}}{\text{Contri. p. u.}}$$

Contri. p. u.

9. P/V Ratio = $\frac{\text{Change in profit}}{\text{Change in Sales}} \times 100$

10. Profit is to be divided in the ratio of Contribution.

11. If there is any change in the Selling Price or Variable Cost, then we have to calculate new P/V Ratio.

12. No. of units to be sold to earn Desired Profit

$$\hookrightarrow \frac{\text{Desired Profit} + \text{F.C.}}{\text{Contribution p. u.}}$$

Contribution p. u.

13. If higher demand \rightarrow low Variable Cost

company will be selected.

If lower demand \rightarrow low fixed Cost company

will be selected.

Topic:- Financial Statement Analysis

1. Current Ratio = $\frac{\text{Current Assets}}{\text{Current Liabilities}}$

2. Quick OR Liquid OR Acid-test Ratio \rightarrow Quick Assets / Liquid Assets.

$\hookrightarrow \frac{\text{Current Assets} - \text{Stock} - \text{Prepaid Exp}}{\text{Current Liabilities}}$

3. Debt Equity Ratio = $\frac{\text{Long Term Debts}}{\text{Equity}}$

OR

$\frac{\text{Total Liabilities}}{\text{Shareholders' funds}}$

4. Capital-Creating Ratio = $\frac{\text{Fixed Income / Dividend}}{\text{Bearing Funds}}$

Equity Shareholders fund

5. Fixed Asset Ratio = $\frac{\text{Fixed Assets}}{\text{Long term assets}}$

$$6. \text{ Proprietary Ratio} = \frac{\text{Proprietary funds}}{\text{Total Assets}}$$

$$7. \text{ Interest Cover Ratio} = \frac{\text{EBIT}}{\text{Int. Exp.}}$$

$$8. \text{ Dividend Cover} = \frac{\text{Profit After Tax}}{\text{Dividend}}$$

$$9. \text{ Stock Velocity} = \frac{\text{Avg. Stock}}{\text{COGS}} \times 365 \text{ days/12 mo.}$$

$$10. \text{ Stock Turnover Ratio} = \frac{\text{Raw Material Consumed}}{\text{Avg. stock of raw material}}$$

$$11. \text{ Stock Turnover Ratio} = \frac{\text{COGS}}{\text{Avg. Stock}}$$

$$12. \text{ Avg. Stock} = \frac{\text{Opening Stock} + \text{Closing Stock}}{2}$$

$$13. \text{ Debtors' Turnover Ratio} = \frac{\text{Credit Sales}}{\text{Avg. accounts receivables}}$$

$$14. \text{ Debtors Velocity} = \frac{\text{Avg. Acc. Receivables}}{\text{Credit Sales}} \times 365 \text{d}/12 \text{mo.}$$

$$15. \text{ Debtors Velocity} = \frac{\text{Months / Days in a year}}{\text{Debtors Turnover Ratio}}$$

$$16. \text{ Creditors Turnover Ratio} = \frac{\text{Credit Purchases}}{\text{Avg. accounts payables}}$$

$$17. \text{ Creditors Velocity} = \frac{\text{Avg. acc. payables}}{\text{Credit purchases}} \times 365 \text{d}/12 \text{m.}$$

$$18. \text{ Creditors Velocity} = \frac{\text{Months / Days in a year}}{\text{Creditors Turnover Ratio}}$$

$$19. \text{ Working Cap. Turnover Ratio} = \frac{\text{Sales}}{\text{Working Cap.}}$$

$$20. \text{ Fixed Asset Turnover Ratio} = \frac{\text{Sales}}{\text{Fixed Assets}}$$

$$21. \text{ Total Assets Turnover Ratio} = \frac{\text{Sales}}{\text{Total Assets}}$$

$$22. \text{ Sales to Capital Employed Ratio} = \frac{\text{Sales}}{\text{Cap. Employed}}$$

$$23. \text{ Gross Profit Ratio} = \frac{\text{Gross Profit}}{\text{Sales}} \times 100$$

$$24. \text{ Net Profit Ratio} = \frac{\text{Net Profit}}{\text{Sales}} \times 100$$

$$25. \text{ Return on investment} = \frac{\text{EBIT}}{\text{Cap. Employed}} \times 100$$

$$26. \text{ Return on assets} = \frac{\text{Profit After Tax}}{\text{Net Assets}} \times 100$$

$$27. \text{ Return on net worth} = \frac{\text{Profit After Tax}}{\text{Cap. Employed/Net worth}} \times 100$$

$$28. \text{Gross Profit Margin} = \frac{\text{Gross Profit}}{\text{Net total asset}}$$

$$29. \text{EBITDA margin} = \frac{\text{EBITDA}}{\text{Net total asset}}$$

$$30. \text{Operating Ratio} = \frac{\text{Operating Cost}}{\text{Sales}} \times 100$$

$$31. \text{Return on Capital Employed} = \frac{\text{PBIT}(1-\text{tax})}{\text{Avg. total asset}}$$

$$32. \text{Net Profit Margin} = \frac{\text{PAT}}{\text{Sales}} \times 100$$

$$33. \text{Assets Turnover Ratio} = \frac{\text{Sales}}{\text{Net Total Asset}} \times 100$$

$$34. \text{Financial leverage} = \frac{\text{Total Asset}}{\text{Total Equity}}$$

* Cap. employed includes loan fund & own fund.

35. $EPS = \frac{\text{Profit available for Equity shareholders}}{\text{No. of Equity shares}}$

36. $P/E \text{ Ratio} = \frac{\text{Market Price per share}}{EPS}$

37. $\text{Dividend Payout Ratio} = \frac{\text{Dividend Per Share}}{EPS}$

38. $\text{Dividend yield Ratio} = \frac{\text{Div. Per share}}{\text{Mkt Price per share}} \times 100$

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Topic :- Introduction To Fin. Management

1. $MVA = \text{Market Value} - \text{Book Value}$.

2. $EVA = \text{NOPAT} - (\text{Cap. Employed} \times \text{Cost of Capital})$

Topic :- Security Analysis.

1. In Balance Sheet Common Size Statement Analysis, % are taken of Total Revenue.

2. Theory Question can be asked from Dow Jones Theory.