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PREFACE

Dear Students,

Welcome to the world of knowledge -- **J.K. Shah Classes !**

I have the pleasure of presenting this study material to you. It contains good number of good problems, selected so carefully from wide-ranging sources. It covers the problems which will bring in to focus all important concepts that you need to study in order to fortify yourself for your examination. The subject will be taught by eminent professors who are highly experienced and well-versed with the job.

The coaching is very exhaustive and wholly concept based. The conceptual explanations are entirely supported by good problems that cover the past and the problems which peep into the future. Also, the coaching is very systematic, well - planned and absolutely time bound. For a change, say good - bye to mechanical learning. I am sure you will feel that the study is a pleasurable job and not a painful exercise.

Each topic of this study material is divided into four parts :

(A) **Theory Section** : This section covers theory related to the topic.

(B) **Classwork Section** : This section covers good number of quality problems which will be solved in the classroom.

(C) **Theory for Exam** : This section covers important theory questions relevant for your IPCC exam.

(D) **Homework Section** : This section covers good number of problems. Students are strongly advised to solve these problems.

I wish you a very happy study time.
BEST OF LUCK !

Prof. J.K. Shah.
Chartered Accountant

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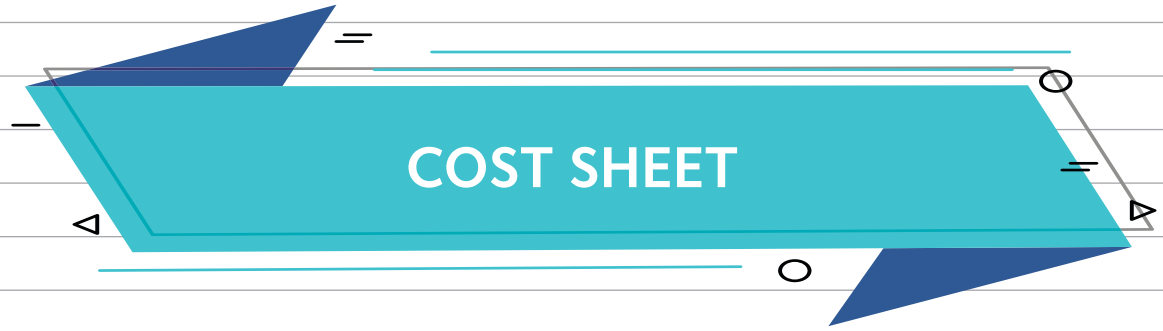


THEORY SECTION

(New & Applicable Format) Cost Sheet of.....

for the year ending.....

Particulars	Total Cost (₹)	
Raw Materials Consumed		
Opening Stock of Raw Materials	xx	
+ Purchase of Raw Materials	xx	
- Scrap of Raw Materials	(xx)	
+ Carriage Inwards (Any expenses on purchase)	xx	
Less : Closing Stock of Raw Materials	(xx)	
Less : Purchase Return	(xx)	xx
Direct employee (labour) cost		xx
Direct expenses		xx
Prime Cost		xx
Works/ Factory Overheads		xx
Gross Works Cost		x
Add: Opening Work in Process		xx
Less: Closing Work in Process		(xx)
Works/ Factory Cost		xx
Quality Control Cost		xx
Research and Development Cost		xx
Administrative Overheads (relating to production activity)		xx
Less: Credit for Recoveries / Scrap / By- Products / miscellaneous income		(xx)
Add: Packing cost (primary)		xx
Cost of Production		xx
Add: Opening stock of finished goods		xx
Less: Closing stock of finished goods		(xx)

Cost of Goods Sold		xx
Add: Administrative Overheads (General)		xx
Add: Marketing Overheads		
-Selling Overheads		xx
-Distribution Overheads		xx
Cost of Sales		xx
Profit		xx
Sales		xx

(Old Format) Cost Sheet of ..... for the year ending.....

Particulars	Total Cost (₹)	
Raw Materials Consumed		
Opening Stock of Raw Materials	Xx	
+ Purchase of Raw Materials	Xx	
- Scrap of Raw Materials	(xx)	
+ Carriage Inwards (Any expenses on purchase)	xx	
Less : Closing Stock of Raw Materials	(xx)	
Less : Purchase Return	(xx)	xx
Add : Direct Labour / Direct Wages / Manufacturing Wages / Productive Wages / Factory Wages		xx
Add : Direct Expenses		xx
Prime Cost		sx
Add : Factory / Manufacturing / Works / Production Overheads	xx	
	xx	
	xx	
	xx	
Less : Sale of Scrap	xx	xx
		xx
Add : Opening Stock of WIP		Xx
Less : Closing Stock of WIP		xx
Factory / Works / Production / Manufacturing Cost		xx
Add : Office & Administrative Overheads (related to production)		
	xx	
	xx	
	xx	xx

Cost of Production		xx
+ Opening Stock of Finished Goods		xx
- Closing Stock of Finished Goods		(xx)
Cost of Goods sold		xx
Add : Office & Administrative Overheads (General)	xx	
Add : Selling & Distribution Overheads	xx	
	xx	
	xx	
	xx	xx
Cost of Sales / Total Cost		xx
Add : Profit		xx
Sales		xx

Notes:

1. **Variable Cost:** It is directly related to production. It is also known as product cost. For e.g. Direct Material, Direct Labour, Direct Expenses.
   Variable cost per unit normally remains same. Total variable cost keeps on changing. If production is increased then total variable cost will increase & if production is decreased then total variable cost will decreased.
2. **Fixed Cost:** It is related to period & not related to product. It is also known as period cost. For e.g. Salary, Rent etc.
   Total amount of Fixed Cost remains same. Fixed cost per unit keeps on changing. If production is increased then Fixed cost per unit will decrease & if production is decreased then Fixed cost per unit will increased.
3. **Semi Variable Cost:** It is also known as Semi Fixed Cost. It is neither variable nor Fixed. It remains same upto certain level of Activity and then it will change.
   Sometimes semi variable can be divided into two parts i.e. Variable & Fixed.
   For e.g. Telephone Expenses.
4. **Stock Valuation:** In Cost Accounting stock is to be valued at Cost Price.
   Cost Price means what?
   (A) Closing stock of Raw Material → It is to be valued at purchase price of Raw Material, purchase price of Raw Material also includes expenses related to purchase.
   (B) WIP → Valuation of WIP includes Direct Material + Direct Labour + Direct Expenses + Factory Overheads.

(C) Finished Goods → It is to be valued at cost of production. (Direct Material + Direct Labour + Direct Expenses + Factory Overheads + Administrative Overheads.

5. Financial expenses & Financial incomes are to be ignored in cost accounting.

E.g. of Financial Expenses: Bad debts, Cash discount allowed, Loss on sale of Assets, Interest, Provision for Income - tax etc.

E.g. of Financial incomes: Bad debts recovered, Interest received, Dividend received, Rent received, Profit on Sale of Assets etc.

6. **Disputed Expenses:** E.g. Bad debts, Cash discount allowed, Interest, etc. {These Expenses can be considered as Financial expenses or It can be recorded in Cost Accounting}.

7. Notional Expenses are to be recorded in Cost Accounting only.

For e.g. Rent of Premises owned by the company i.e. notional rent.

PRACTICAL QUESTIONS

Question 1

The following extracts of costing information relate to commodity A for the year ended 31.3.2019.

Purchase of Raw Material	₹ 48,000
Direct Wages	₹ 40,000
Stock on 1-4-2018	
of Raw Material	₹ 8,000
of Finished Goods 1,600 quintals	₹ 6,400
Stock on 31-3-2019	
of Raw Material	₹ 6,800
of Finished Goods 3,200 quintals	
Work on cost (factory overhead)	₹ 16,800
Work-in-Progress:	
1st April 2018	₹ 1,920
31st March 2019	₹ 6,400
Office and Administrative Overheads (Related to Production)	₹ 3,200
Sales (Finished Product)	₹ 1,20,000

Advertising, discount allowed and selling cost is Re. 0.40 per quintal. During the year 25,600 quintals of commodity were produced. Prepare Cost sheet.

Question 2

XYZ a manufacturing firm, has revealed following information for 10 September, 2019:

	1st September	30th September
	(₹)	(₹)
Raw Materials	2,42,000	2,92,000
Works-in-progress	2,00,000	5,00,000

The firm incurred following expenses for a targeted production of 1,00,000 units during the month :

	₹
Consumable Stores and spares of factory	3,50,000
Research and development cost for process improvements	2,50,000
Quality control cost	2,00,000
Packing cost (secondary) per unit of goods sold	2

Lease rent of production asset	2,00,000
Administrative Expenses (General)	2,24,000
Selling and distribution Expenses	4,13,000
Finished goods (opening)	Nil
Finished goods (closing)	5000 units

Defective output which is 4% of targeted production, realizes 61per unit.

Closing stock is valued at cost of production (excluding administrative expenses)

Cost of goods sold, excluding administrative expenses amounts to ₹78,26,000.

Direct employees cost is ½ of the cost of material consumed.

Selling price of the output is 110 per unit.

You are required to :

(i) Calculate the Value of material purchased

(ii) Prepare cost sheet showing the profit earned by the firm.

Question 3

X Ltd. has the following expenditures for the year ended 31st March, 20X8:

	Amount (₹)	Amount (₹)
Raw materials purchased		10,00,00,000
Freight inward		11,20,600
Wages paid to factory workers		29,20,000
Contribution made towards employees' PF & ESIS		3,60,000
Production bonus paid to factory workers		2,90,000
Royalty paid for production		1,72,600
Amount paid for power & fuel		4,62,000
Amount paid for purchase of moulds and patterns (life is equivalent to two years production)		8,96,000
Job charges paid to job workers		8,12,000
Stores and spares consumed		1,12,000
Depreciation on:		
- Factory building	84,000	
- Office building	56,000	
- Plant & Machinery	1,26,000	
- Delivery vehicles	86,000	3,52,000
Salary paid to supervisors		1,26,000
Repairs & Maintenance paid for:		

- Plant & Machinery	48,000	
- Sales office building	18,000	
- Vehicles used by directors	19,600	85,600
Insurance premium paid for:		
- Plant & Machinery	31,200	
- Factory building	18,100	
- Stock of raw materials & WIP	36,000	85,300
Expenses paid for quality control check activities		19,600
Salary paid to quality control staffs		96,200
Research & development cost paid improvement in production process		18,200
Expenses paid for pollution control and engineering & maintenance		26,600
Expenses paid for administration of factory work		1,18,600
Salary paid to functional mangers:		
- Production control	9,60,000	
- Finance & Accounts	9,18,000	
- Sales & Marketing	10,12,000	28,90,000
Salary paid to General Manager		12,56,000
Packing cost paid for:		
- Primary packing necessary to maintain quality	96,000	
- For re-distribution of finished goods	1,12,000	2,08,000
Interest and finance charges paid		7,20,000
Fee paid to auditors		1,80,000
Fee paid to legal advisors		1,20,000
Fee paid to independent directors		2,20,000
Performance bonus paid to sales staffs		1,80,000
Value of stock as on 1st April, 20X7		
- Raw materials	18,00,000	
- Work-in-process	9,20,000	
- Finished goods	11,00,000	38,20,000
Value of stock as on 31st March, 20X8		
- Raw materials	9,60,000	
- Work-in-process	8,70,000	
- Finished goods	18,20,000	36,50,000
Sale of scrap and waste generated		86,000

From the above data you are requested to PREPARE Statement of cost for X Ltd. for the year ended 31st March, 20X8, showing (i) Prime cost, (ii) Factory cost, (iii) Cost of Production, (iv) Cost of goods sold and (v) Cost of sales.

Question 4

Maximum production capacity of JK Ltd. is 5,20,000 units per annum. Details of estimated cost of production are as follows:

- Direct material ₹ 15 per unit.
- Direct wages ₹ 9 per unit (subject to a minimum of ₹ 2,50,000 per month).
- Fixed overheads ₹ 9,60,000 per annum.
- Variable overheads ₹ 8 per unit.
- Semi-variable overheads are ₹ 5,60,000 per annum up to 50 per cent capacity and additional ₹ 1,50,000 per annum for every 25 per cent increase in capacity or a part of it.

JK Ltd. worked at 60 per cent capacity for the first three months during the year 2018-19, but it is expected to work at 90 per cent capacity for the remaining nine months. The selling price per unit was ₹ 44 during the first three months.

You are required to find out, what selling price per unit should be fixed for the remaining nine months to yield a total profit of ₹ 15,62,500 for the whole year.

ABSORPTION COSTING & OVERHEADS

THEORY SECTION

ABSORPTION COSTING

1. GENERAL:

In order to get fixed overheads cost per unit, for the purpose of determining the sales price, we need to know the actual fixed overheads and actual level of activity; But the actual overheads and the actual level of activity would be known to us only at the end of the accounting year, whereas the sales price has to be known before the commencement of the accounting year and therefore the actual information cannot be used.

Absorption costing technique as against marginal costing technique, lays down artificial link between the budgeted overheads and the budgeted level of activity, to get budgeted overheads charge, which is known as "Absorption rate, recovery rate or application rate.

The level of activity can be expressed in terms of output, machine hours, labour hours, labour cost, material cost or prime cost, man-days etc.

Once the absorption rate is developed, every time something is produced, the overheads will be charged at absorption rate. Thus, the factory overheads that we write in the cost sheet are absorbed overheads and not the actual. (Unless the company follows marginal costing).

2. METHODS:

Depending on the terms in which level of activity is expressed, there are six different methods; as stated below:

(a) **Output method** $\frac{\text{Budgeted Fixed Overheads}}{\text{Budgeted Output}}$ = ₹ - Per Unit

(b) **Machine hour rate** $\frac{\text{Budgeted Fixed Overheads}}{\text{Budgeted No. of Machine Hours}}$ = ₹ - Per Machine Hour

(c) **Labour hour rate** = $\frac{\text{Budgeted Fixed Overheads}}{\text{Budgeted No. of Labour Hours}}$ ₹ - Per Labour Hour

(d) **Labour cost method** $\frac{\text{Budgeted Fixed Overheads}}{\text{Budgeted Labour Cost}} \times 100$ = % of Labour Cost

(e) **Material Cost Method** $\frac{\text{Budgeted Fixed Overheads}}{\text{Budgeted Material cost}} \times 100$ = % of Material Cost

(f) **Prime cost method** $\frac{\text{Budgeted Fixed Overheads}}{\text{Budgeted Prime Cost}} \times 100$ = % of Prime Cost

3. Selection of Method:

(a) If the company manufactures only one product, or two or more products but which are more or less identical from overheads point of view, then the output method is the best.

(b) When the company manufactures two or more products which are quite different from overheads point of view.

(i) **Machine hour rate:**

If the production is basically machine oriented, then the overheads would mainly depend on machine utilisation and therefore the product which will make more use of machines, should be charged more amount of overhead also. Accordingly, we follow machine hour rate method.

(ii) **Labour hour rate / labour cost method:**

When the output is predominately labour oriented, we may follow one of these two methods.

If the overheads mainly depend on labour time, then, the labour hour rate method should be followed whereas, if the overheads mainly depend upon labour type, then labour cost method should be followed. If may be noted that if there is only one of labour, or there are different types of labour but the wage are same, these two methods will give identical results.

(iii) **Material cost method:**

If the overheads depend on the cost of raw material consumed, then this method should be followed.

(iv) **Prime cost method:**

If he overheads depend on not only the material cost but also on the labour cost, we follow this method.

4. Detection of Method:

Sometimes, the method is neither named nor adequate information is given so as to enable us to calculate the rate. However, overheads absorbed in the past months of the same accounting period are given alongwith level of activity in different terms. In such cases, we compare the overheads absorbed with level of activity in different terms and whichever method gives consistently the same rate of overheads absorption can be presumed as being followed by the company. If two or more methods satisfy this condition, any of them can be selected at random. If the method is named but the rates are not given, then, in such cases also, the same technique can be followed to detect the rates.

5. Under / Over Absorption of Overheads:

At the end of the accounting year we compare actual fixed overheads with fixed overheads absorbed difference is known as under / over absorption of overhead.

Under or over absorption will arise whenever either overheads will change or output will change or both will change but not in same proportion. If both will change in same proportion then there will not be any under or over absorption of overheads.

	Actual Fixed Overhead	xx
(-)	Fixed Overhead Absorbed	xx
	Under / (Over) Absorbed	xx

$$\text{Absorption Rate} = \frac{\text{Budgeted Fixed Overhead}}{\text{Budgeted Level of Activity}} = \frac{1,00,000}{25,000 \text{ units}} = ₹4 \text{ p.u.}$$

	A	B	C	D
Actual Fixed Overhead	1,00,000	90,000	1,10,000	96,000
(-) Fixed Overhead Absorbed	96,000	1,00,000	96,000	96,000
(ALA x AR)	(24,000 x 4)	(25,000 x 4)	(24,000 x 4)	(24,000 x 4)
Under / Over Absorbed	4,000	(10,000)	14,000	NIL
	Under	Over	Under	↓
	Absorbed /	Absorbed /	Absorbed /	No effect
	recovered	recovered	recovered	
	OR	**OR**	**OR**	
	Over Spent	Under	Over Spent	
		Spent		

6. Treatment of under / over absorption of overheads:

1. Carry Forward Method

Under this method under / over absorbed amount is carried forward to next year. This method is not allowed in financial accounting because in financial accounting expenses of current year cannot be carried forward to next year.

2. Adjust in Current Year

(A) Adjust in cost of sales / Costing P & L A/c at the end of the year

In this method under / over absorbed amount is to be adjusted in cost of Sales or Costing P & L A/c.

In this method under / over absorbed amount is charged to Sales Quantity instead of Production Quantity.

(B) Supplementary Rate Method

In this method under or over absorbed amount is to be adjusted at the same place where absorbed amount is recorded.

In this method under or over absorbed amount is charged to Production Quantity.

Supplementary rate method can be followed during the year or at the end of the year.

Calculation of Supplementary Rate

Under or Over Absorbed amount	xxx
÷ Actual level of activity	xx
Supplementary Rate	xx
OR	
Actual Fixed Overheads	xx
÷ Actual level of activity	xx
Actual Rate	xx
- Absorption Rate	xx
Supplementary Rate	xx

(C) Partly adjust by supplementary rate method and partly adjust in cost of sales / costing P & L A/c.

In this method, under or over absorbed amount which is due to normal factor is to be adjusted by supplementary rate method.

Under / Over absorbed amount which is due to Abnormal factor is to be adjusted in cost of sales / costing P & L A/c.

OVERHEADS

1. **Objective:** It is to get total budgeted overheads, the ultimate objective being to get the overhead absorption rate so that the overhead can be charged to the output for preparing the cost sheet. The Budgeted level of activity in this chapter would always be given. The technique is also to be used to get actual overheads at the end of the year.

2. **Types of Departments:** There can be two types of departments in all, namely, production department and service department, The production departments are in charge of production and therefore they incur the prime cost as well as the overhead. Whereas the service departments manufacture nothing but only render some very useful and vital service to the production departments. Accordingly every conceivable expenditure, by whatever name called, that the service departments (e.g. canteen department) incur is always an overhead expenses item.

3. **Type of Overheads Expenses:** There are following three types of expenses in all.
   - **(A) Primary distribution:**
     - (i) Allocable overheads
     - (ii) Apportionable overheads
   - **(B) Secondary distribution:**
     - (iii) Reapportionable overheads of service departments,

The allocable expenses are the expenses for which various depts. can be directly held responsible and therefore we directly charge expenses to those departments.

The apportionable overheads are common expenses (e.g. rent) for which no department can be directly held responsible. We apportion these expenses to various departments on some equitable basis, the basis being the one on which the expenditures basically depends (e.g. Rent basically would depend on area and therefore we apportion it on the basis of area occupied. If area is not given then we settle for the next best option. (no. of light points). If that also is not given then we prefer still next best (may be number of employees) and if we have no other alternative now, then we go to the last resort. If the production is basically machine oriented then, such expenses we apportion in the ratio of machine hours and if labour oriented then on the basis of labour hours or direct labour cost.

Re-apportionable expenses are the total expenses of service departments (allocated and apportioned), They are now to be reapportioned, effectively, to production departments. There are 3 possibilities in all as shown below, but it should be obvious that the reapportionment has to be in the ratio of service rendered. It is to be reapportioned to all those departments which have taken the service.

(i) **Totally independent service departments:** (Direct Method) In such cases the order in which we take up the service departments is not important. because the expenses are to be reapportioned only the production departments. Here all service departments render service only to production departments.

(ii) **Partially dependent service departments:** (or Step, ladder method) Here one service department renders the service to the other of them but, does not take the service of other of them. Accordingly, the order in which we take up the department is very important.

(iii) **Totally interdependent service departments:** (Reciprocal Method) Here each service department renders the service to other of them and takes the service from other of them also. There are two methods in all and any of which can be employed, the result remaining to same.

(a) Continuous distribution or cycle method.

(b) Equation method.

PRACTICAL QUESTIONS

ABSORPTION COSTING

Question 1

The Alpha Manufacturing Company processes production through two departments (i) Machining. (ii) Finishing. Overhead rates are predetermined on the basis of machine hours in the Machine department and direct labour cost in the Finishing department.

Figures for the year based on which overhead rates were arrived at are furnished below:

	Machine Dept.	Finishing Dept.
Direct labour cost (₹)	36,00,000	40,00,000
Factory overhead (₹)	80,00,000	60,00,000
Direct labour hours	24,00,000	50,00,000
Machine hours	20,00,000	5,00,000

The cost sheet of job order No. 1478 indicates:

	Machine Dept.	Finishing Dept.
Material consumed (₹)	50	77
Direct labour cost (₹)	45	40
Direct labour hours	24	35
Machine hours	15	5

Assume that production order no. 1478 consisted of 10 Nos of part no. 1865. Prepare a cost sheet showing the unit cost of each part.

Question 2

ABC Ltd. manufactures a single product and absorbs the production overheads at a pre-determined rate of ₹ 10 per machine hour.

At the end of financial year 20X1-X2, it has been found that actual production overheads incurred were ₹ 6,00,000. It included ₹ 45,000 on account of 'written off' obsolete stores and ₹ 30,000 being the wages paid for the strike period under an award.

The production and sales data for the year 20X1-X2 is as under:

Production:	
Finished goods	20,000 units
Work-in-progress	8,000 units
(50% complete in all respects)	

Sales:	
Finished goods	18,000 units

The actual machine hours worked during the period were 48,000. It has been found that one-third of the under-absorption of production overheads was due to lack of production planning and the rest was attributable to normal increase in costs.

(i) Calculate the amount of under-absorption of production overheads during the year 20X1-X2; and

(ii) Show the accounting treatment of under-absorption of production overheads.

OVERHEADS

Question 3

Deccan Manufacturing Ltd., have three departments which are regarded as production departments. Service departments' costs are distributed to these production departments using the "Step Ladder Method" of distribution. Estimates of factory overhead costs to be incurred by each department in the forthcoming year are as follows. Data required for distribution is also shown against each department:

Department	Factory overhead	Direct labour hours	No. of employees	Area in sq.m.
Production:				
X	1,93,000	4,000	100	3,000
Y	64,000	3,000	125	1,500
Z	83,000	4,000	85	1,500
Service:				
P	45,000	1,000	10	500
Q	75,000	5,000	50	1,500
R	1,05,000	6,000	40	1,000
S	30,000	3,000	50	1,000

The overhead costs of the four service departments are distributed in the same order, viz., P,Q,R and S respectively on the following basis.

Department	Basis
P	Number of employees
Q	Direct labour hours
R	Area in square metres
S	Direct labour hours

You are required to:

(i) Prepare a schedule showing the distribution of overhead costs of the four service departments to the three production departments; and

(ii) Calculate the overhead recovery rate per direct labour hour for each of the three production departments.

Question 4

Sanz Ltd., is a manufacturing company having three production departments, 'A', 'B' and 'C' and two service departments 'X' and 'Y'. The following is the budget for December 2013:

	Total (₹)	A (₹)	B (₹)	C (₹)	X (₹)	Y (₹)
Direct material		1,00,000	2,00,000	4,00,000	2,00,000	1,00,000
Direct wages		5,00,000	2,00,000	8,00,000	1,00,000	2,00,000
Factory rent	4,00,000					
Power	2,50,000					
Depreciation	1,00,000					
Other overheads	9,00,000					
Additional information:						
Area (Sq. ft.)		500	250	500	250	500
Capital value of assets (₹ lakhs)		20	40	20	10	10
Machine hours		1,000	2,000	4,000	1,000	1,000
Horse power of machines		50	40	20	15	25

A technical assessment of the apportionment of expenses of service departments is as under:

	A	B	C	X	Y
Service Dept. 'X' (%)	45	15	30	----	10
Service Dept. 'Y' (%)	60	35	----	5	----

Required:

(i) A statement showing distribution of overheads to various departments.

(ii) A statement showing re-distribution of service departments expenses to production departments.

Question 5

A machine shop has 8 identical Drilling machines manned by 6 operators. The machine cannot be worked without an operator wholly engaged on it. The original cost of all these machines works out to ₹ 8 lakhs.

These particulars are furnished for a 6 months period:

Normal available hours per month	208
Absenteeism (without pay) hours	18
Leave (with pay) hours	20
Normal idle time unavoidable-hours	10
Average rate of wages per worker for 8 hours a day.	₹ 20
Production bonus estimated	15% on wages
Value of power consumed	₹ 8,050
Supervision and indirect labour	₹ 3,300
Lighting and electricity	₹ 1,200

These particulars are for a year

Repairs and maintenance including consumables 3% of value of machines.

Insurance ₹ 40,000

Depreciation 10% of original cost.

Other sundry works expenses ₹ 12,000

General management expenses allocated ₹ 54,530.

You are required to work out a comprehensive machine hour rate for the machine shop.

Question 6

In a factory, a machine is considered to work for 208 hours in a month. It includes maintenance time of 8 hours and set up time of 20 hours.

The expense data relating to the machine are as under:

- Cost of the machine is ₹ 5,00,000. Life 10 years. Estimated scrap value at the end of life is ₹ 20,000.

	₹
Repairs and maintenance per annum	60,480
Consumable stores per annum	47,520
Rent of building per annum (The machine under reference occupies 1/6 of the area)	72,000
Supervisor's salary per month (Common to three machines)	6,000

Wages of operator per month per machine	2,500
General lighting charges per month allocated to the machine	1,000
Power 25 units per hour at ₹ 2 per unit	

Power is required for productive purposes only. Set up time, though productive, does not require power. The Supervisor and Operator are permanent. Repairs and maintenance and consumable stores vary with the running of the machine.

Required:

Calculate a two-tier machine hour rate for (a) set up time, and (b) running time.

ACTIVITY BASED COSTING

PRACTICAL QUESTIONS

Question 1

'Humara - Apna' bank offers three products, viz., deposits, Loans and Credit Cards. The bank has selected 4 activities for a detailed budgeting exercise, following activity based costing methods.

The bank wants to know the product wise total cost per unit for the selected activities, so that prices may be fixed accordingly.

The following information is made available to formulate the budget:

Activity	Present Cost (₹)	Estimation for the budget peri-od
ATM Services:		
(a) Machine Maintenance	4,00,000	All fixed, no change
(b) Rents	2,00,000	Fully fixed, no change.
(c) Currency Replenishment Cost	1,00,000	Expected to double during budget period.
		(This activity is driven by no. of ATM transactions)
	7,00,000	
Computer Processing	5,00,000	Half this amount is fixed and no change is expected. The variable portion is expected to increase to three times the current level. (This activity is driven by the number of computer transactions)

Issuing Statements	18,00,000	Presently, 3 lac statements are made. In the budget period, 5 lac statements are expected. For every increase of one lac statement, one lac rupees is the budgeted increase. (This activity is driven by the number of statements)
Computer Inquiries	2,00,000	Estimated to increase by 80% during the budget period (This activity is driven by telephone minutes)

The activity drivers and their budgeted quantifies are given below:

Activity Drivers	Deposits	Loans	Credit Cards
No. of ATM Transactions	1,50,000	-	50,000
No. of Computer Processing Transactions	15,00,000	2,00,000	3,00,000
No. of Statements to be issued	3,50,000	50,000	1,00,000
Telephone Minutes	3,60,000	1,80,000	1,80,000

The bank budgets a volume of 58,600 deposit accounts, 13,000 loan accounts, and 14,000 Credit Card Accounts.

Required

(i) Calculate the budgeted rate for each activity.

(ii) Prepare the budgeted cost statement activity wise.

(iii) Find the budgeted product cost per account for each product using (i) and (ii) above.

Question 2

Asian Mfg. Co. had decided to increase the size of the store. It wants the information about the profitability of the individual product lines: Lemon, Grapes and Papaya. It provides the following data for the 2013 for each product line:

Particulars	Lemon	Grapes	Papaya
Revenues (₹)	79,350	2,10,060	1,20,990
Cost of goods sold (₹)	60,000	1,50,000	90,000

Cost of bottles returned (₹)	1,200	0	0
Number of purchase orders placed	36	84	36
Number of deliveries received	30	219	66
Hours of shelf stocking time	54	540	270
Items sold	12,600	1,10,400	30,600

Asian Mfg. Co. also provides the following information for the year 2013:

Activity	Description of Activity	Total Costs (₹)	Cost Allocation Basis
Bottle returns	Returning of empty bottles to the store	1,200	Direct tracing to product line
Ordering	Placing of orders of purchases	15,600	156 purchase orders
Delivery	Physical delivery and the receipts of merchandise	25,200	315 deliveries
Shelf stocking	Stocking of merchandise on store shelves and ongoing restocking	17,280	864 hours of time
Customer support	Assistance provided to customers including bagging and checkout	30,720	1,53,600 items sold

Required

(i) Asian Mfg. Co. currently allocates store support costs (all costs other than the cost of goods sold) to the product line on the basis of the cost of goods sold of each product line. Calculate the operating income and operating income as the percentage of revenue of each product line.

(ii) If Asian Mfg. Co. allocates store support costs (all costs other than the cost of goods sold) to the product lines on the basis of ABC system, calculate the operating income and operating income as the percentage of revenue of each product line.

(iii) Compare both the systems.

JOB COSTING

PRACTICAL QUESTIONS

Question 1

In a factory following the Job Costing Method, an abstract from the work-in- progress as on 30th September was prepared as under:

Job No.	Materials (₹)	Direct Labour		Factory Overheads applied (₹)
		Hours	Cost (₹)	
115	1325	400 hrs.	800	640
118	810	250 hrs	500	400
120	765	300 hrs.	475	380
	2,900		1,775	1,420

Materials used in October were as follows:

Materials Requisition No.	Job No.	Cost (₹)
54	118	300
55	118	425
56	118	515
57	120	665
58	121	910
59	124	720
		3,535

A summary for labour hours deployed during October is as under:

Job No.	Number of Hours	
	Shop A	Shop B
115	25	25
118	90	30
120	75	10
121	65	--

124	25	10
	275	75
Indirect Labour : Waiting of material	20	10
Machine breakdown	10	5
Idle time	5	6
Overtime premium	6	5
	316	**101**

A shop credit slip was issued in October, that material issued under Requisition No. 54 was returned back to stores as being not suitable. A material transfer note issued in October indicated that material issued under Requisition No. 55 for Job 118 was directed to Job 124.

The hourly rate in shop A per labour hour is ₹ 3 per hour while at shop B, it is ₹ 2 per hour. The factory overhead is applied at the same rate as in September. Job 115, 118 and 120 were completed in October.

You are asked to compute the factory cost of the completed jobs. It is the practice of the management to put a 10% on the factory cost to cover administration and selling overheads and invoice the job to the customer on a total cost plus 20% basis. What would be the invoice price of these three jobs?

Question 2

In the current quarter, a company has undertaken two jobs. The data relating to these jobs are as under:

	Job 1102	Job 1108
Selling price	₹ 1,07,325	₹ 1,57,920
Profit as percentage on cost	8%	12%
Direct Materials	₹ 37,500	₹ 54,000
Direct Wages	₹ 30,000	₹ 42,000

It is the policy of the company to charge Factory overheads as percentage on direct wages and Selling and Administration overheads as percentage on Factory cost.

The company has received a new order for manufacturing of a similar job. The estimate of direct materials and direct wages relating to the new order are ₹ 64,000 and ₹ 50,000 respectively. A profit of 20% on sales is required.

You are required to compute

(i) The rates of Factory overheads and Selling and Administration overheads to be charged.

(ii) The Selling price of the new order

Hint for solving Question 1

W.N. 1 Selection/Detection of Method of Absorption and Absorption Rate

No.	Method	Formula	115	118	120
1	Labour Hour	Budgeted Fixed Overheads / Budgeted Labour Hours	640 / 400 = 1.60 per Labour Hour	400 / 250 = 1.60 per Labour Hour	380 / 300 = 1.27 per Labour Hour
2	Labour Cost	Budgeted Fixed Overheads / Budgeted Labour Cost x 100	640 / 800 x 100 = 80.00% of Labour Cost	400 / 500 x 100 = 80.00% of Labour Cost	380 / 475 x 100 = 80.00% of Labour Cost
3	Material Cost	Budgeted Fixed Overheads / Budgeted Material Cost x 100	640 / 1,325 x 100 = 48.30% of Material Cost	400 / 810 x 100 = 49.38% of Material Cost	380 / 765 x 100 = 49.67% of Material Cost
4	Prime Cost	Budgeted Fixed Overheads / Budgeted Prime Cost x 100	640 / 2,125 x 100 [1,325 + 800] = 30.12% of Prime Cost	400 / 1,310 x 100 [810 + 500] = 30.53% of Prime Cost	380 / 1,240 x 100 [765 + 475] = 30.66% of Prime Cost

PROCESS & OPERATION COSTING

THEORY SECTION

Process costing is followed by those company in which Raw Material has to pass through different stages of manufacture before it is converted into Finished Goods. Each stage of manufacture is known as process Accounts. It is followed by cloth manufacturing company, leather goods manufacture company, petrol & oil manufacturing company etc. Main purpose of process costing is to find out cost p.u. at every stage of manufacture & to value work in progress.

Process I A/c

	Units	₹		Units	₹
To Opening WIP	xx	xx	By Normal Loss	xx	xx
To Raw Material Introduced	xx	xx	By Abnormal Loss	xx	xx
To Direct Labour		xx	By Output transferred to	xx	xx
To Direct Expenses		xx	Process II A/c		
To Factory Overheads		xx	By Closing WIP	xx	xx
To Abnormal Gain	xx	xx			
	xx	**xx**		**xx**	**xx**

Normal Loss: It is expected loss & not actual loss. It is calculated based on past experience. It is unavoidable. Normal loss is always valued at scrap value.

Abnormal Loss: Abnormal loss arises whenever actual loss is more than normal loss. Whenever there is abnormal loss actual output received will be less than normal expected Output. Abnormal loss is always valued at cost price.

Abnormal Loss = Actual Loss - Normal Loss

Abnormal Gain: Abnormal gain arises whenever actual loss is less than normal loss. It represents extra Output produced. Abnormal gain is always valued at cost price.

Abnormal Gain = Normal Loss - Actual Loss

$$\text{Cost Per Unit} = \frac{\text{Total Expenses on Dr. Side - Scrap Value of Normal Loss}}{\text{Expected Output (Input - Normal Loss)}}$$

WEIGHTED AVERAGE METHOD (WAM)
VIRSUS FIFO METHOD

(1) Presumption:

(i) FIFO presumes that opening W.I.P. is first processed further and forms part of units completed.

(ii) Weighted Average method makes no such presumptions and it only says that it forms part of the units completed + closing W.I.P.

(2) Statement of Equivalent production:

(i) Under FIFO, we break up the finished output in two parts, viz, opening stock processed further and units completely processed because the underlying presumption is that opening stock is processed further.

(ii) Under W.A.M. we write the finished output as it is without breaking it up because we do not know whether it forms part of finished output or closing W.I.P.

In a way therefore whereas FIFO method gives us the equivalent output of this period, Weighted Average method gives the equivalent output at the end of the period.

(3) Statement of cost per unit:

(i) Under FIFO method the cost of opening stock is directly to be charged to finished output only and therefore we divide only current period's cost by current output.

(ii) Under weighted Average method, we charge the cost at the end of the period, element wise (i.e. cost of opening W.I.P. + Current cost) to the output at the end of the period.

(4) Apportionment of cost:

(i) Under FIFO, in respect of finished output, we apportion the cost partly to opening stock processed further and partly to units completely processed.

(ii) Under WAM, since the finished output is not broken up in two part at all, the apportionment is to be made only to finished output.

(5) Factory cost of output:

(i) Under FIFO, this is sum total of three different figures, viz, the cost of opening stock, cost of opening stock processed further and cost of units completely processed. Accordingly, we put this working note only to get 3 figures from different places, so that the final figure can be calculated.

(ii) Under WAM, since output is not broken up at all, we get total apportionment when we make normal apportionment and therefore this note is not at all required.

(6) When to follow which method:

(i) The FIFO method requires the information about degrees of completion of opening W.I.P. and therefore whenever it is not given, it will fail and one has to follow WAM.

(ii) WAM requires the information about the break up of opening stock valuation element wise and therefore whenever the break up is not given, the method would fail and one has to follow FIFO.

(iii) If the degree of completion of opening stock as well as the break up of its valuation are given then, if the instruction is given, we accordingly select the methods and in the absence of instruction, as such we are free to follow any of the two methods though it is better to follow FIFO.

(7) Common Areas:

All other areas except those noted above are same. (For example, the treatment to be given to abnormal loss and gain, regardless of the method, would be the same.)

(8) Final Results:

The two methods would normally give different results except under the following situations where the two methods would give same result.

(i) The cost per equivalent unit of each element last period and this period is same.

(ii) There is no opening W.I.P.

(iii) There is no new production in the current period.

(iv) There is no closing WIP.

(v) There is no finished output.

PROCESS ACCOUNT FOR PROCESS OTHER THAN PROCESS I

In such Problems, we have two types of materials. One is output of previous process (say cloth) and other is material used in this process (say colour). In such cases as regards degree of completion, a few things are very obvious and therefore no information would be given in the problem.

They are to be taken for granted. They are as given below:

(1) Closing Work-In-Progress always includes output of previous process completely (cloth) and therefore degree of completion is always 100%. As regards materials used during the process the degree of completion could be anything between 0% to 99% and this information would always be given in the problem.

(2) In respect of Abnormal Loss, the raw material that comes from the previous process is obviously completely lost and therefore the degree of completion is always 100%. Depending on the stage of rejection, the degree of completion of material used during the process could be anywhere between 0% to 99% and therefore information would be given.

(3) As regards Opening Stock processed further, the material that came from previous process is completely there in the opening stock, and therefore there is no question of processing further. In other words degree of completion of further processing would be zero. In respect of other raw material, information would always be given.

To conclude, the degree of completion of raw material of previous process is always 100% in respect of Abnormal Loss and closing work-in-progress and always 0% in respect of further processing of Opening Stock.

Normal Loss, Abnormal Loss, Abnormal Gain

Points to be Remembered

(1) Normal Loss:

(i) This is not an output item and therefore it is not to be written in the statement of equivalent production.

(ii) The scrap value that we credit to the process A/c has to be deducted, as a matter of principle, from prime cost. But conventionally, it is always deducted from material cost.

(iii) Deducting scrap value from material cost implies that the scrap value pertains to each and every unit and further the entire scrap value pertains to the material cost.

Calculating of normal loss

Normal loss can be percentage of

(A) As a matter of policy:

It can be as percentage of input.

It can be as percentage of through - put

(Opening WIP + Units put in - Closing WIP)

(B) Random Methods:

(Instruction to be given in the question)

(i) Percentage of Opening units + units put in

(ii) Units put in - closing WIP

(iii) Percentage of Input

(iv) Percentage of opening units + units put in - closing WIP

(2) Abnormal Loss:

(i) This is as good as output item and therefore to be written in the statement of equivalent production.

(ii) The degree of completion would be given in the exam question but, if not given then we have to put the presumption. As such any presumption would work through one may take 100% everywhere.

(3) Abnormal Gain:

(i) This is to be written in the statement of equivalent production but it is to be deducted from other output items.

(ii) Degree of completion of abnormal gain is always to be taken as 100%.

PRACTICAL QUESTIONS

Question 1

Product X is obtained after it passes through three distinct processes. You are required to prepare process accounts from the following information:

	Total	I	II	III
Material	15,084	5,200	3,960	5,924
Wages	18,000	4,000	6,000	8,000
Production Overheads	18,000			

1,000 Units at ₹ 6/- unit were introduce in Process - I.

Production overheads are to be distributed at 100% of direct wages.

	Actual output	Normal loss	Value of scrap per unit
Process – I	950 Units	5%	₹ 4
Process – II	840 Units	10%	₹ 8
Process - III	750 Units	15%	₹ 10

Also prepare abnormal loss / gain accounts, as well as normal loss account.

Dr Cr

Particulars	Qty.	Amt.	Particulars	Qty.	Amt.

Dr Cr

Particulars	Qty.	Amt.	Particulars	Qty.	Amt.

Dr Cr

Particulars	Qty.	Amt.	Particulars	Qty.	Amt.

Dr Cr

Particulars	Qty.	Amt.	Particulars	Qty.	Amt.

Dr Cr

Particulars	Qty.	Amt.	Particulars	Qty.	Amt.

Dr Cr

Particulars	Qty.	Amt.	Particulars	Qty.	Amt.

Question 2

The following information relate to Process A:

Opening Work – in – Progress	8,000 units at ₹ 75,000
Degree of Completion: Material	100%
Labour and Overheads	60%
Input 1,82,000 units at	7,37,500
Wages paid	3,40,600
Overheads paid	1,70,300
Units scrapped	14,000
Degree of Completion: Material	100%
Wages and Overheads	80%
Closing Work – in – Progress	18,000 Units
Degree of Completion: Material	100%
Wages and Overheads	70%

- Units completed and transferred to next process - 1,58,000 units
- Normal loss 5% of total input & Scrap value is expected to be ₹ 5 per unit. Abnormal loss (if any) can be sold @ of ₹ 6/- per unit.

You are required to compute on the basis of FIFO

(i) Equivalent Production

(ii) Cost Per Unit

(iii) Value of Units transferred to next process & also prepare process & other accounts.

Dr Cr

Particulars	Qty.	Amt.	Particulars	Qty.	Amt.

Question 3

Following details are related to the work done in Process-I by XYZ Company during the month of March:

	(₹)
Opening work-in process (2,000 units)	
Materials	80,000
Labour	15,000
Overheads	45,000
Materials introduced in Process-I (38,000 units)	14, 80,000
Direct Labour	3, 59,000
Overheads	10, 77,000
Units scrapped: 3,000 units	
Degree of completion:	
Materials	100%
Labour and overheads	80%
Closing work-in process: 2,000 units	
Degree of completion:	
Materials	100%
Labour and overheads	80%
Units finished and transferred to Process-II: 35,000 units	
Normal Loss:	
5% of total input including opening work-in-process.	
Scrapped units fetch ₹ 20 per piece.	

You are required to prepare:

(i) Statement of equivalent production

(ii) Statement of cost

(iii) Statement of distribution cost, and

(iv) Process-I Account, Normal Loss Account and Abnormal Loss Account.

Dr Cr

Particulars	Qty.	Amt.	Particulars	Qty.	Amt.

Question 4

Star Ltd. manufactures chemical solutions for the food processing industry. The manufacturing takes place in a number of processes and the company uses a FIFO process costing system to value work-in-process and finished goods. At the end of the last month, a fire occurred in the factory and destroyed some of the paper files containing records of the process operations for the month.

Star Ltd. needs your help to prepare the process accounts for the month during which the fire occurred. You have been able to gather some information about the month's operating activities but some of the information could not be retrieved due to the damage. The following information was salvaged:

- Opening work-in-process at the beginning of the month was 800 litres, 70% complete for labour and 60% complete for overheads. Opening work-in-process was valued at ₹ 26,640.
- Closing work-in-process at the end of the month was 160 litres, 30% complete for labour and 20% complete for overheads.
- Normal loss is 10% of input and total losses during the month were 1,800 litres partly due to the fire damage.
- Output sent to finished goods warehouse was 4,200 litres.
- Losses have a scrap value of ₹ 15 per litre.
- All raw materials are added at the commencement of the process.
- The cost per equivalent unit (litre) is ₹ 39 for the month made up as follows:

	(₹)
Raw Material	23
Labour	7
Overheads	9
	39

Required:

(i) Calculate the quantity (in litres) of raw material inputs during the month.

(ii) Calculate the quantity (in litres) of normal loss expected from the process and the quantity (in litres) of abnormal loss / gain experienced in the month.

(iii) Calculate the values of raw material, labour and overheads added to the process during the month.

(iv) Prepare process account for the month.

Question 5

A Ltd. produces product 'AXE' which passes through two processes before it is completed and transferred to finished stock. The following data relate to October 20X4:

	Process – I (₹)	Process – II (₹)	Finished Stock (₹)
Opening stock	7,500	9,000	22,500
Direct materials	15,000	15,750	--
Direct wages	11,200	11,250	--
Factory overheads	10,500	4,500	--
Closing stock	3,700	4,500	11,250
Inter-process profit included in opening stock	--	1,500	8,250

Output of Process- I is transferred to Process- II at 25% profit on the transfer price.

Output of Process- II is transferred to finished stock at 20% profit on the transfer price.

Stock in process is valued at prime cost. Finished stock is valued at the price at which it is received from process II. Sales during the period are ₹ 1,40,000.

Prepare Process cost accounts and finished goods account showing the profit element at each stage.

JOINT PRODUCTS & BY PRODUCTS

THEORY SECTION

(1) MEANING:

There are so many products which emerge jointly and for which we incur common cost. The products which emerge jointly are all known as joint products. They are separated at a point known as Separation point or Split off point. Some of these products are then classified as Main Products & others as By-products. Main products are those products which are independently profitable and the sale price per unit is significantly more than proportionate common expenditure in the factory. The production manager tries his level best to get as much output of these products as possible. The By-products are those products which have insignificant sale value and it is less than proportionate common expenditure. Given a choice, he would never want to have this product. The common expenditure we incur is known as Joint Cost and in this chapter we need to know two things. viz. how to apportion the joint cost and the depth of processing of Joint Products.

(2) ACCOUNTING METHODS:

There are, in all, two accounting methods as explained below :

(i) The total joint cost is apportioned to all the joint products including by-products.

(ii) The by-products are treated as scrap and the scrap value (sales value) of output of by-product is deducted from total joint cost and balance net joint cost is apportioned only to the main products.

(3) METHODS OF APPORTIONMENT OF JOINT COST:

There are three methods in all as explained below:

(1) **OUTPUT / PHYSICAL MEASURE METHOD:** Under this method, joint cost is charged to various products in the ratio of their output. In other words, the joint cost per unit of output that will be charged to various products would be the same.

Suitability: If all the products are main products & sales prices are more or less same, then it would mean that various joint products are more or less identical and in such cases, they all can be treated on par. Only in such cases, this method has some justification.

Not Suitable: Whenever we have joint products, the sales prices of which are significantly different, there would be no justification in charging same cost to these different products.

(2) **Sales value (of output at separation / Split off point) method :** Under this method, the Joint cost is apportioned to various products in the ratio of sales value of output of various products at separation point. In other words the product which has higher sales price will be made to bear more burden of cost per unit. This method is most reasonable since it charges more cost to the product which makes us incur more amount of cost. (i.e. more profitable products). If the choice is left to us, we must always use or follow this method only.

(3) **Net Relative sales value / net realisable value / notional sales value method:** As already noted, given a choice, we always follow sales value method. But sometimes, the Joint products are either not marketable at split off point or they may be marketable but are not marketed by the company. In such cases, sales value of output at separation point would not be known and therefore the sales value method would fail.

Under this method, we first calculate notional sales value of the output of products by deducting specific expenses incurred after separation point from the final sales value and we apportion the Joint cost in the ratio of such sales value of the output of various joint products. Whenever sales value method fails, this is the next best method. It should be noted that if some products are sold at separation point and some are processed further then, we follow real sales value method for products which are sold at separation point and this notional sales value method is to be used in respect of the products for which, the sales value of which at separation point, cannot be known.

(4) DEPTH OF PROCESSING:

Whenever we have the options of selling the product at separation point or processing it further, we should follow the following steps to decide the depth of processing.

(1) We should find out the sales value of the product at separation point and sales value if the product is processed further and then sold. The difference between these two is additional sales value that we will get, if the product is processed further. (Sales value of output of Ghee minus sales value of output of butter).

(2) We should now find out additional cost (variable and fixed both) that we would be incurring if and only if the product is processed further. In other words, the cost that will be incurred irrespective of whether the product is processed further or not must be ignored.

(3) If the additional sales value (step1) is more than the additional cost (step 2), the product should be processed further. When additional cost exceeds additional sales value, the product should be sold at separation point.

(4) The Joint Cost is incurred before the separation point and therefore we must never apportion the same while deciding the depth of processing.

(5) STANDARD PROFIT STATEMENT:

This chapter is part of Cost-Sheet and therefore it is possible that we may be asked to prepare Cost-Sheet or Profit Statement. All that this chapter teaches us is how to get factory cost of various products when common cost is incurred for the benefit of two or more products. Once that is done we get factory cost of each and every joint product and with the help of other cost information and by following usual principles, we can easily prepare Cost-Sheet or Profit Statement.

Usually, the joint cost we have to apportion and sales and other information's are given so that we get profit as balancing figure. However in general if all the items, except any one of them, are given then what is not given can be taken as balancing figure. In this chapter, joint cost can be the balancing figure.

The following standard statement can be used for this purpose, to have cost sheet for each product.

Manufacturing Cost	₹
(a) Joint Cost	***
(b) Separate Cost	***
Factory Cost	***
Add : Administrative Overheads	***

Cost of Production	***
Add / Less : Stock of finished goods	***

Cost of goods sold	***
Add : S & D Overheads	***
Administrative Overheads (General)	
Cost of Sales	***
NET PROFIT	***
Sales	***

It should be noted that, upto the joint cost, the company will have to have a common cost sheet.

PRACTICAL QUESTIONS

Question 1

Find out the cost of joint products A, B and C using average unit cost method from the following data:

(a) Pre-separation Joint Cost ₹ 60,000

(b) Production data:

Products	Units produced
A	500
B	200
C	300
	1,000

Question 2

Inorganic Chemicals purchases salt and processes it into more refined products such as Caustic Soda, Chlorine and PVC. In the month of July, Inorganic Chemicals purchased Salt for ₹ 40,000. Conversion cost of ₹ 60,000 were incurred upto the split off point, at which time two saleable products were produced. Chlorine can be further processed into PVC.

The July production and sales information is as follows:

	Production (in ton)	Sales Quantity (in ton)	Selling price per ton (₹)
Caustic Soda	1,200	1,200	50
Chlorine	800	–	–
PVC	500	500	200

All 800 tons of Chlorine were further processed, at an incremental cost of ₹ 20,000 to yield 500 tons of PVC. There was no beginning or ending inventories of Caustic Soda, Chlorine or PVC in July.

There is active market for Chlorine. Inorganic Chemicals could have sold all its July production of Chlorine at ₹ 75 per ton.

Required:

(i) To calculate how joint cost of ₹ 1,00,000 would be apportioned between Caustic Soda and Chlorine under each of following methods:

(a) sales value at split- off point ;

(b) physical unit method, and

(c) estimated net realisable value.

(ii) Lifetime Swimming Pool Products offers to purchase 800 tons of Chlorine in August at ₹ 75 per ton. This sale of Chlorine would mean that no PVC would be produced in August. How the acceptance of this offer for the month of August would affect operating income ?

Question 3

Sun-moon Ltd. produces and sells the following products:

Products	Units	Selling price at split-off point (₹)	Selling price after further processing (₹)
A	2,00,000	17	25
B	30,000	13	17
C	25,000	8	12
D	20,000	10	----
E	75,000	14	20

Raw material costs ₹ 35,90,000 and other manufacturing expenses cost ₹ 5,47,000 in the manufacturing process which are absorbed on the products on the basis of their 'Net realisable value'. The further processing costs of A, B, C and E are ₹12,50,000; ₹ 1,50,000; ₹ 50,000 and ₹ 1,50,000 respectively. Fixed costs are ₹ 4,73,000.

You are required to prepare the following in respect of the coming year:

(i) Statement showing income forecast of the company assuming that none of its products are to be further processed.

(ii) Statement showing income forecast of the company assuming that products A, B, C and E are to be processed further.

(iii) Can you suggest any other production plan whereby the company can maximise its profits? If yes, then submit a statement showing income forecast arising out of adoption of that plan.

Question 4

A factory is engaged in the production of a chemical BOMEX and in the course of its manufacture, a by-product BRUCIL is produced, which after further processing has a commercial value. For the month of April 2005, the following are the summarised cost data :

	Joint Expenses	Separate Expenses	Separate Expenses
		BOMEX	BRUCIL
	Rs.	Rs.	Rs.
Materials	1,00,000	6,000	4,000
Labour	50,000	20,000	18,000
Overheads	30,000	10,000	6,000
Total	1,80,000	36,000	28,000
Selling Price per unit		98	34
Estimated profit per unit on sale of BRUCIL			4
		UNITS	UNITS
No. of units produced		2,000	2,000

The factory uses reverse cost method of accounting for by-products whereby the sales value of by-products after deduction of the estimated profit, post separation costs and selling and distribution expenses relating to the by-products is credited to the joint process cost account.

You are required to prepare statements showing:

(i) The joint cost allocable to BOMEX

(ii) The product-wise and overall profitability of the factory for April 2005.

Question 5

A Chemical Company carries on production operation in two processes. The material first pass through Process I, where Product 'A' is produced. Following data are given for the month just ended:

Material input quantity	2,00,000 kg.
Opening work-in-progress quantity	
(Material 100% and conversion 50% complete)	40,000 kg
Work completed quantity	1,60,000 kg
Closing work-in-progress quantity	
(Material 100% and conversion two-third complete)	30,000 kg.

Material input cost	₹ 75,000
Processing cost	₹ 1,02,000
Opening work-in-progress cost	
Material cost	₹ 20,000
Processing cost	₹ 12,000

Normal process loss in quantity may be assumed to be 20% of material input. It has no realisable value.

Any quantity of Product 'A' can be sold for ₹ 1.60 per kg.

Alternatively, it can be transferred to Process II for further processing and then sold as Product 'AX' for ₹ 2 per kg. Further materials are added in Process II, which yield two kg. of product 'AX' for every kg. of Product 'A' of Process I.

Of the 1,60,000 kg. per month of work completed in Process I, 40,000 kg. are sold as Product 'A' and 1,20,000 kg. are passed through Process II for sale as Product 'AX'. Process II has facilities to handle upto 1,60,000 kg. of Product 'A' per month, if required.

The monthly costs incurred in Process II (other than the cost of Product 'A') are:

	1,20,000 kg. of Product 'A' input (₹)	1,60,000 kg. of Product 'A' input (₹)
Materials Cost	1,32,000	1,76,000
Processing Costs	1,20,000	1,40,000

Required:

(i) Determine, using the weighted average cost method, the cost per kg. of Product 'A' in Process I and value of both work completed and closing work-in-progress for the month just ended.

(ii) Is it worthwhile processing 1,20,000 kg. of Product 'A' further?

(iii) Calculate the minimum acceptable selling price per kg., if a potential buyer could be found for additional output of Product 'AX' that could be produced with the remaining Product 'A' quantity.

Question 6

Pokemon Chocolates manufactures and distributes chocolate products. It purchases Cocoa beans and processes them into two intermediate products:

Chocolate powder liquor base and Milk-chocolate liquor base

These two intermediate products become separately identifiable at a single split off point.

Every 500 pounds of cocoa beans yields 20 gallons of chocolate – powder liquor base and 30 gallons of milk-chocolate liquor base.

The chocolate powder liquor base is further processed into chocolate powder. Every 20 gallons of chocolate-powder liquor base yields 200 pounds of chocolate powder. The milk chocolate liquor base is further processed into milk-chocolate. Every 30 gallons of milk-chocolate liquor base yields 340 pounds of milk chocolate.

Production and sales data for October are:

Cocoa beans processed 7,500 pounds

Costs of processing Cocoa beans to split off point ₹ 7,12,500
(including purchase of beans)

Products	Production	Sales	Selling price
Chocolate powder	3,000 pounds	3,000 pounds	₹ 190 per pound
Milk chocolate	5,100 Pounds	5,100 Pounds	₹ 237.50 per pound

In October, separable costs of processing chocolate-powder liquor into chocolate powder are ₹ 3,02,812.50 and separable costs of processing milk-chocolate liquor base into milk-chocolate are ₹ 6,23,437.50.

Pokemon fully processes both of its intermediate products into chocolate powder or milk-chocolate.

There is an active market for these intermediate products.

In October, Pokemon could have sold the chocolate powder liquor base for ₹ 997.50 a gallon and the milk-chocolate liquor base for ₹ 1,235 a gallon.

Required:

(i) Calculate how the joint cost of ₹ 7,12,500 would be allocated between the chocolate powder and milk-chocolate liquor bases under the following methods:

(a) Sales value at split off point

(b) Estimated net realisable value, (NRV) and

(c) Constant gross-margin percentage NRV.

COST ACCOUNTING SYSTEM

THEORY SECTION

INTEGRAL & NON – INTEGRAL ACCOUNTS

(I) GENERAL - Under integral accounting system, only one set of books of accounts is prepared and the accounts are written in such a manner that due justice is done to all the Cost Accounting and financial Accounting principles. The accounts to be opened would depend on ultimate outcome expected and ultimate outcome of integral accounting system is the cost sheet for cost accountant and profit and loss A/c and balance sheet for financial accountant.

Under non-integral accounting system, two different sets of books are maintained, one for financial and other for cost accounting purposes. Since we are concerned only with cost accounting under this system, in the problem on non-integral accounting, we only need to know how the accounts are to be written for cost accounting purposes.

(II) NON-INTEGRAL ACCOUNTING SYSTEM :

(1) Necessary accounts to be opened:

(a) GENERAL LEDGER ADJUSTMENT A/C OR COST LEDGER CONTROL A/C:

This is practically a dummy A/c and is to be used where one of the two parts of the journal is a cost sheet item and the other is a Balance Sheet item. Since Balance Sheet items have no place in our system, the Balance Sheet part of the Journal, whether debit or credit, is to be replaced by this account. If both the parts of the journal are balance sheet items or both the parts are cost sheet items, then naturally this account has no use.

(b) STORES LEDGER CONTROL A/C.

This is in respect of raw material when raw material is purchased, this account is debited and when raw material is issued to the production department, it is credited to this a/c and debited to Work-in-progress a/c. The material issued for repairs and maintenance is also credited to this

account and debited to factory overheads account. Likewise, abnormal loss of material is credited to this account and debited to costing profit and loss A/c.

(c) **WORK-IN-PROGRESS LEDGER CONTROL A/C:**

On the debit side of this A/c, we write opening balance and factory cost incurred. On the credit side, factory cost of production completed is transferred to finished goods ledger control a/c and balance is closing stock. Also, if there is some abnormal loss, the factory cost of abnormal loss (Prime cost and Factory overheads) is credited to this A/c and debited to abnormal loss A/c and similarly, abnormal gain is debited to this a/c and credited to abnormal gain a/c.

(d) **FINISHED GOODS LEDGER CONTROL A/C:**

On the debit side of this A/c, we write opening stock of finished goods, factory cost of production completed and transferred to warehouse and administration overheads. On the credit side, the production cost of goods sold is transferred to cost of sales a/c and the balance is closing stock of finished goods.

(e) **WAGE CONTROL A/C:**

On the debit side of this a/c, we write the wages incurred, whether direct or indirect. On the credit side, the indirect wages could be factory, administration or S & D overheads and depending on that, we transfer them to Factory overheads Control A/c, administration Overheads Control A/c or S & D overheads Control A/c. Direct wages are transferred to Work-in-progress account. It is also possible (in fact, better) to transfer to this account, only direct wages and to transfer indirect wages directly from GLA A/c to respective overheads accounts.

(f) Factory overheads Control A/c.

(g) Administrative Overheads Control A/c.

(h) Selling and Distribution overheads Control A/c.

On the Debit side of each of these accounts, we write the amount actually spent.

The factory overheads, to the extent recovered, are transferred to Work-in-progress Ledger Control A/c. The administrative overheads are similarly transferred to Finished Goods ledger control A/c and S & D Overheads are transferred to cost of sales a/c.

As regards the difference between the amount spent and recovered,

if there is some instruction, direct or indirect, it should be followed. In the absence thereof, there are two alternatives. One is to transfer the difference to Costing Profit & Loss A/c and the other is to carry it forward by showing the difference as closing balance. It is also possible to follow supplementary rate system.

If opening trail balance is given and such items do appear in it then that means the company follows the policy of carrying forward the difference to the next period. If they do not appear in the opening trial balance then, in the absence of information to the contrary, these A/c's should be closed by transferring the difference to Costing Profit & Loss A/c. If the supplementary system is to be followed, then, the difference should be transferred to the same account to which absorption is transfered.

(i) COST OF SALES A/C:

On the debit side of this A/c, we write production cost of goods sold (which is transferred from finished goods ledger control a/c) and Selling and Distribution overheads. The total being cost of sales, we transfer it to Costing Profit and Loss A/c.

(j) SALES A/C:

On the credit side of this a/c, we write the amount of sales by debiting General ledger Adjustment A/c and we close this A/c by transferring sales to costing Profit and Loss A/c.

(k) ABNORMAL LOSS / GAIN A/C:

These are the a/c's for recording the transactions of abnormal nature and we close these a/c's by transferring the balance to profit and Loss A/c.

(1) COSTING PROFIT AND LOSS A/C:

On the debit side of this A/c, we write the cost of sales and abnormal losses and on the credit side sales and abnormal gain. Based on the policy as regards overheads, the under / over absorption may also be written on the debit side or as the case may be on credit side. We close this a/c by transferring the profit (loss) to General Ledger adjustment A/c.

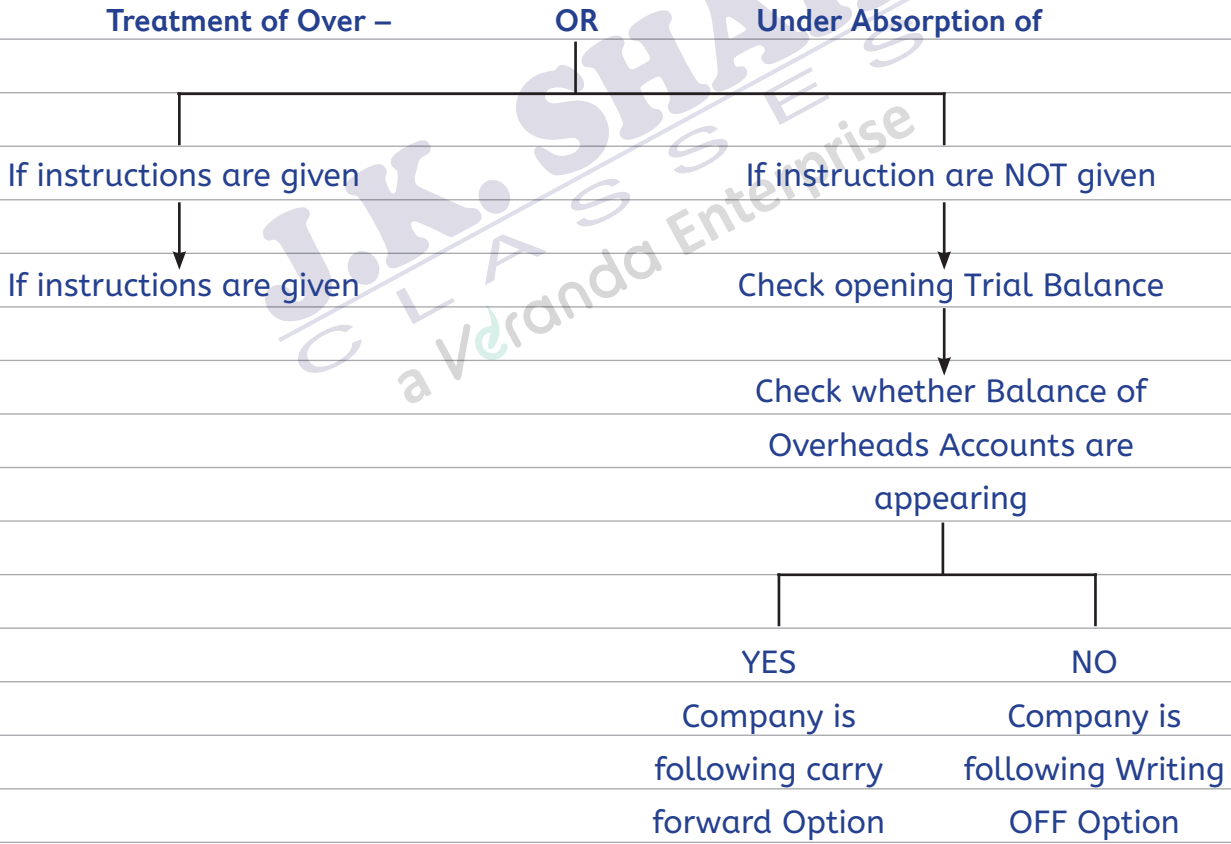
(2) TRIAL BALANCE:

Obviously, the closing balances would be inventory accounts General Ledger Adjustment accounts and Overhead A/c's (If the policy is to carry forward the difference).

(III) INTEGRAL ACCOUNTING SYSTEM :

Here, the balance sheet is also required and therefore General Ledger adjustment account (dummy A/c) obliviously has no place. If there are some items of financial nature (Income Tax, Fine Penalty etc.), then after preparing costing profit & loss A/c, we prepare Profit & Loss A/c and we write all the items of Financial nature in the profit and loss A/c. In that case, the net profit that we get in Costing Profit & Loss A/c is transferred to this Profit and Loss A/c. Final Net profit is then to be transferred to Reserve and Surplus A/c.

As regards overheads, the under or over-recovery of overheads is to be transferred to be adjusted in current year only. Then, there are as many more accounts as the number of balance sheet items in the problem. We give very normal two effects to every transaction and then close all the accounts. Finally, we prepare trial balance or, as the case may be, the balance sheet.



RECONCILIATION STATEMENT

In a non-integral system of accounting, where costing & financial books are kept separate, there will be two profit figures emerging from each set of accounts. Every company would like to know why there is difference in the two profit figures. The difference could be due to:

1. Expenses or incomes recorded only in Financial Accounting.
2. Notional Expenses recorded only in Cost Accounting.
3. Difference in the valuation of stock.

   Here the difference is due to either valuation difference (in one set of books the accountant might follow FIFO and in the other the other accountant might follow LIFO) or principle difference (which happens only in case of finished goods).
4. Under or over absorption of overheads.

   In costing we generally follow absorption costing where absorption rate is found out at the beginning of the year, which is Budgeted overheads/Budgeted level of activity. This absorption rate is applied during the year to get absorbed overheads. In financial accounts we generally write down actual overheads.

PRACTICAL QUESTIONS

SECTION A : INTEGRAL & NON – INTEGRAL ACCOUNTS

Question 1

On 31st March the following balances were extracted from the books of the Supreme Manufacturing Company:

	Dr. (₹)	Cr. (₹)
Stores Ledger Control A/c	35,000	
Work-in-Process Control A/c	38,000	
Finished Goods Control A/c	25,000	
Cost Ledger Control A/c		98,000
	98,000	98,000

The following transactions took place in April:

	(₹)
Raw Materials	
- Purchased	95,000
- Returned to suppliers	3,000
- Issued to production	98,000
- Returned to stores	3,000
Productive wages	40,000
Indirect wages	25,000
Factory overhead expenses incurred	50,000
Selling and Administrative expenses	40,000
Cost of finished goods transferred to warehouse	2,13,000
Cost of Goods sold	2,10,000
Sales	3,00,000

Factory overheads are applied to production at 150% of direct wages, any under/over absorbed overhead being carried forward for adjustment in the subsequent months. All administrative and selling expenses are treated as period costs and charged off to the Profit and Loss Account of the month in which they are incurred.

Show the following Accounts:

(a) Cost Ledger Control A/c
(b) Stores Ledger Control A/c
(c) Work-in-Process Control A/c
(d) Finished Goods Stock Control A/c
(e) Factory Overhead Control A/c
(f) Costing Profit and Loss A/c
(g) Trial Balance as at 30th April, 20X3.

Particulars	Amount	Particulars	Amount

Particulars	Amount	Particulars	Amount

Particulars	Amount	Particulars	Amount

Particulars	Amount	Particulars	Amount

Particulars	Amount	Particulars	Amount

Particulars	Amount	Particulars	Amount

Particulars	Amount	Particulars	Amount

Particulars	Amount	Particulars	Amount

Particulars	Amount	Particulars	Amount

Particulars	Amount	Particulars	Amount

Particulars	Amount	Particulars	Amount

Particulars	Amount	Particulars	Amount

Question 2

Bangalore Petrochemicals Co. keeps books on integrated accounting system. The following balances appear in the books as on 1st January, 20X2.

	Dr. (₹)	Cr. (₹)
Stores Ledger control A/c	18,000	
Work-in-Process Control A/c	17,000	
Finished Goods Control A/c	13,000	
Bank A/c	10,000	
Creditors A/c		8,000
Fixed assets A/c	55,000	
Debtors A/c	12,000	
Share capital A/c		80,000
Provision for depreciation A/c		5,000
Profit and loss A/c		32,000
	1,25,000	**1,25,000**

Transaction for the year ended 31st Dec., 20X2 were as given below:

	(₹)	(₹)
Wages-direct	87,000	
Wages-indirect	5,000	92,000
Purchase of materials (on credit)		1,00,000
Materials issued to production		1,10,000
Materials for repairs		2,000
Goods finished during the year (at cost)		2,15,000
Sales (credit)		3,00,000
Cost of goods sold		2,20,000
Production overhead absorbed		48,000
Production overhead incurred		40,000
Administration overhead		12,000
Selling overhead incurred		14,000
Payments of creditors		1,01,000
Payments of debtors		2,90,000
Depreciation on machinery		1,300
Prepaid rent (included in factory overheads)		300

Write up accounts in the integrated ledger.

Particulars	Amount	Particulars	Amount

Particulars	Amount	Particulars	Amount

Particulars	Amount	Particulars	Amount

Particulars	Amount	Particulars	Amount

Particulars	Amount	Particulars	Amount

Particulars	Amount	Particulars	Amount

Particulars	Amount	Particulars	Amount

Particulars	Amount	Particulars	Amount

Particulars	Amount	Particulars	Amount

Particulars	Amount	Particulars	Amount

Particulars	Amount	Particulars	Amount

Particulars	Amount	Particulars	Amount

Particulars	Amount	Particulars	Amount

Particulars	Amount	Particulars	Amount

Particulars	Amount	Particulars	Amount

Particulars	Amount	Particulars	Amount

Particulars	Amount	Particulars	Amount

Question 3

The following incomplete accounts are furnished to you for the month ended 31st October, 2019.

Stores Ledger Control Account					
1.10.2019	To Balance	₹ 54,000			
Work in Process Control Account					
1.10.2019	To Balance	₹ 6,000			
Finished Goods Control Account					
1.10.2019	To Balance	₹ 75,000			
Factory Overheads Control Account					
Total debits for October, 2019		₹ 45,000			
Creditors for Purchases Account					
			1.10.2019	By Balance	₹ 30,000

Additional information:

(i) The factory overheads are applied by using a budgeted rate based on direct labour hours. The budget for overheads for 2019 is ₹ 6,75,000 and the budget of direct labour hours is 4,50,000.

(ii) The balance in the account of creditors for purchases on 31.10.2019 is ₹ 15,000 and the payments made to creditors in October, 2019 amount to ₹ 1,05,000.

(iii) The finished goods inventory as on 31st October, 2019 is ₹ 66,000.

(iv) The cost of goods sold during the month was ₹ 1,95,000.

(v) On 31st October, 2019 there was only one unfinished job in the factory. The cost records show that ₹ 3,000 (1,200 direct labour hours) of direct labour cost and ₹ 6,000 of direct material cost had been charged.

(vi) A total of 28,200 direct labour hours were worked in October, 2019. All factory workers earn same rate of pay.

(vii) All actual factory overheads incurred in October, 2019 have been posted.

You are required to find:

(i) Materials purchased.

(ii) Cost of goods completed.

(iii) Overheads applied to production.

(iv) Balance of Work-in-process Control A/c.

(v) Direct materials consumed.

(vi) Balance of Stores Ledger Control Account.

(vii) Over absorbed or under absorbed overheads.

Particulars	Amount	Particulars	Amount

Particulars	Amount	Particulars	Amount

Particulars	Amount	Particulars	Amount

Particulars	Amount	Particulars	Amount

Particulars	Amount	Particulars	Amount

SECTION B : RECONCILIATION

Question 4

The financial books of a company reveal the following data for the year ended 31st March, 2019:

	(₹)
Opening Stock:	
Finished goods 875 units	74,375
Work-in-process	32,000
01.04.2018 to 31.3.2019	
Raw materials consumed	7,80,000
Direct Labour	4,50,000
Factory overheads	3,00,000
Goodwill written off	1,00,000
Administration overheads	2,95,000
Dividend paid	85,000
Bad Debts	12,000
Selling and Distribution Overheads	61,000
Interest received	45,000
Rent received	18,000
Sales 14,500 units	20,80,000
Closing Stock: Finished goods 375 units	41,250
Work-in-process	38,667

The cost records provide as under:

- Factory overheads are absorbed at 60% of direct wages.
- Administration overheads are recovered at 20% of factory cost.
- Selling and distribution overheads are charged at ₹ 4 per unit sold.
- Opening Stock of finished goods is valued at ₹ 104 per unit.
- The company values work-in-process at factory cost for both Financial and Cost Profit Reporting.

Required:

(i) Prepare statements for the year ended 31st March, 2019 show
  - the profit as per financial records
  - the profit as per costing records.

(ii) Present a statement reconciling the profit as per costing records with the profit as per Financial Records.

BUDGETARY CONTROL

THEORY SECTION

FUNCTIONAL BUDGETS

1. Sales Budgets:

The end objective is to get the expected sale that the company plans to make. The classification exclusively depends on the information given which can be in terms of areas, managers, salesmen, period, the products, the quantity and price. Sometimes, instead of giving the budgeted sales quantity and price, we may be given the actual result of some other past period and the expected changes. In such case we give effect to the expected changes, adjust the past accordingly and the resultant figures would be the future targets.

2. Purchase and / or production budget for main product:

The following format should be used to develop this budget.

Budgeted sales quantity (a)	X X X X
Add : Budgeted closing stock of main product (b)	+ X X X X
Less : Opening stock of main product (b)	– X X X X
Quantity to be purchased / Net quantity to be produced (c)	X X X X
Add : Loss of main product (c)	+ X X X X
Gross Quantity to be produced (d)	X X X X

(a) The Budgeted Sales Quantity may be given straight away or budgeted sales value and sales price may be given (in which case we divide budgeted sales value by sales price) or instead of sales price the total cost and profit% may be given in which case, we add the profit to the cost and get sales price or instead of total cost we may be given details of cost, in which case we first develop cost sheet and get the sales price. Exceptionally, sales budget may be required to get total budgeted sales quantity.

(b) Most often these are straight away given in the problem. Sometimes stock valuation and the cost at which the stock is valued may be given in which case

we divide the stock valuation by cost per unit. Sometimes, instead of cost per unit, we may be given details of cost so that we calculate cost by preparing cost sheet.

(c) If the company is buying the main product, then it is Net quantity to the purchased. If the purchase price is given, we may multiply this quantity by the price to get total purchase cost.

If we manufacture the main product and there is no loss of the main product (and not raw material), then, this quantity is the quantity to be manufactured. If there is a possibility of loss of output, then, accordingly quantity likely to be rejected must be added to this figure to get total budgeted production.

(d) It is possible that the production capacity available is insufficient. In that case, upto the production capacity available, we manufacture (and that part of the quantity becomes production budget) and the balance we buy (and that quantity represents purchase budget).

3. Purchase and / or production budget for raw material (say raw material x) required for main product.

The following format should be used to prepare this budget.

Budgeted raw material quantity required for

Production of main product (a)	XX
Add : Budgeted Closing Stock of raw material	+ XX
Less : Opening Stock of raw material	– XX
Net Qty. to be purchased / Net qty. to be produced	XX
Add : Loss of output of raw material	XX
Gross Quantity to be produced	+ XX

(a) This depends on the following three factors :

→ Various main products which require raw material 'X' as input (which would always be given).

→ The quantity of each of main product to be produced (which will never be given and therefore one has to prepare production budget first which itself may require sales budget).

→ The quantity of each type of raw material required per unit of each of the main production.

→ All other points (b, c) are, with appropriate changes, same as applicable to production budget.

4. Purchase / production budget for raw material (y) required to manufacture other raw material (x) which is required for main product (z).

The format for this budget is the same as the one prepared for budget No. 3. However, in budget No.3, we had written the raw material required for main product. Here raw material 'X' becomes main product in relation to raw material 'y, other things being the same.

5. Purchase budget for raw material (say B) required for other raw material (say Y).

In relation to this material, 'Y' becomes main product and accordingly, purchase budget for raw material as written in part (3), should be prepared.

If the Question is only on this budget, then, we have to prepare following budgets in the order given.

(1) Sales budget.
(2) Production budget for main product.
(3) Production budget for raw material X.
(4) Production budget for raw material Y.

6. Labour Cost Budget:

The end objective is to get the expected labour cost that we are going to incur.

The labour cost to be incurred would depend on whether the workers are paid on time basis or piece-rate basis. If it is piece rate, then, we need to multiply the budgeted production of each of the products (including raw material, if they are being manufactured) by the piece rate p.u. As we have studied in Labour Cost Control Chapter, the piece rate can be derived by dividing time wages for certain period of time by normal output expected in that much period of time (obviously, after making provision for normal permitted idle time).

If they are paid on time basis, then, we should first calculate number of hours for each type of labour required by multiplying the number of units of each item to be produced by no. of hours of each type of labour required per unit of each of the products to be produced. The number of hours that we now get should be multiplied by wage rate per hour to get budgeted labour cost.

It is quite possible that number of units of various items to be produced may not be given. In that case, we should prepare sales budget and other production budgets to get the quantity of each item to be produced.

7. Factory Overheads / Administrative overheads / S & D overheads budget:

Here the objective is to get the expected cost we are to incur. Most often expenses to be incurred are given but exceptionally we may have to follow the principles applicable to overheads chapter which would require allocation, apportionment and reapportionment.

8. Cash Budget:

This is opening balance (positive or negative) plus expected receipts minus expected payments.

9. Master budget:

Master Budget is budgeted Profit & Loss Account and Budgeted Balance Sheet. It is obvious that to prepare these two statements, all other mini budgets will have to be prepared.

PRACTICAL QUESTIONS

Question 1

Action Plan Manufacturers normally produce 8,000 units of their product in a month, in their Machine Shop. For the month of January, they had planned for a production of 10,000 units. Owing to a sudden cancellation of a contract in the middle of January, they could only produce 6,000 units in January.

Indirect manufacturing costs are carefully planned and monitored in the Machine Shop and the Foreman of the shop is paid a 10% of the savings as bonus when in any month the indirect manufacturing cost incurred is less than the budgeted provision.

The Foreman has put in a claim that he should be paid a bonus of ₹ 88.50 for the month of January. The Works Manager wonders how anyone can claim a bonus when the Company has lost a sizeable contract.

The relevant figures are as under:

Indirect manufacturing	Expenses for a normal month (₹)	Planned for January (₹)	Actual in costs January (₹)
Salary of foreman	1,000	1,000	1,000
Indirect labour	720	900	600
Indirect material	800	1,000	700
Repairs and maintenance	600	650	600
Power	800	875	740
Tools consumed	320	400	300
Rates and taxes	150	150	150
Depreciation	800	800	800
Insurance	100	100	100
	5,290	**5,875**	**4,990**

Do you agree with the Works Manager? Is the Foreman entitled to any bonus for the performance in January? Substantiate your answer with facts and figures.

Question 2

Concorde Ltd. manufactures two products using two types of materials and one grade of labour. Shown below is an extract from the company's working papers for the next month's budget:

	Product - A	Product - B
Budgeted sales (in units)	2,400	3,600
Budgeted material consumption per unit (in kg)		

Material – X	5	3
Material – Y	4	6
Standard labour hours allowed per unit of product	3	5

Material-X and Material-Y cost ₹ 4 and ₹ 6 per kg and labours are paid ₹ 25 per hour. Overtime premium is 50% and is payable, if a worker works for more than 40 hours a week. There are 180 direct workers.

The target productivity ratio (or efficiency ratio) for the productive hours worked by the direct workers in actually manufacturing the products is 80%. In addition the non-productive down-time is budgeted at 20% of the productive hours worked.

There are four 5-days weeks in the budgeted period and it is anticipated that sales and production will occur evenly throughout the whole period.

It is anticipated that stock at the beginning of the period will be:

Product-A	400 units
Product-B	200 units
Material-X	1,000 kg.
Material-Y	500 kg

The anticipated closing stocks for budget period are as below:

Product-A	4 days sales
Product-B	5 days sales
Material-X	10 days consumption
Material-Y	6 days consumption

Required:

Calculate the Material Purchase Budget and the Wages Budget for the direct workers, showing the quantities and values, for the next month.

Question 3

A single product company estimated its sales for the next year quarter-wise as under:

Quarter	Sales (Units)
I	30,000
II	37,500.
III	41,250
IV	45,000

The opening stock of finished goods is 10,000 units and the company expects to maintain the closing stock of finished goods at 16,250 units at the end of the year.

The production pattern in each quarter is based on 80% of the sales of the current quarter and 20% of the sales of the next quarter.

The opening stock of raw materials in the beginning of the year is 10,000 kg. and the closing stock at the end of the year is required to be maintained at 5,000 kg.

Each unit of finished output requires 2 kg. of raw materials.

The company proposes to purchase the entire annual requirement of raw materials in the first three quarters in the proportion and at the prices given below:

Quarter	Purchase of raw materials % to total annual requirement in quantity	Price per kg. (₹)
I	30%	2
II	50%	3
III	20%	4

The value of the opening stock of raw materials in the beginning of the year is ₹ 20,000.

You are required to present the following for the next year, quarter wise:

(i) Production budget (in units).

(ii) Raw material consumption budget (in quantity).

(iii) Raw material purchase budget (in quantity and value).

(iv) Priced stores ledger card of the raw material using First in First out method.

Question 4

A company is engaged in the manufacture of specialised sub-assemblies required for certain electronic equipment. The company envisages that in the month of December the sales will take a pattern in the ratio of 3: 4: 2 respectively of sub-assemblies, ACB, MCB and DP.

The following is the schedule of components required for manufacture:

Sub-assembly	Selling Price	Component requirements			
		Base board	IC08	IC12	IC26
ACB	520	1	8	4	2
MCB	500	1	2	10	6
DP	350	1	2	4	8
Purchase price (₹)		60	20	12	8

The direct labour time and variable overheads required for each of the sub-assemblies are:

Labour hours per sub – assembly

	Grade A	Grade B	Variable overheads per sub – assembly (₹)
ACB	8	16	36
MCB	6	12	24
DP	4	8	24
Direct wage rate per hour (₹)	5	4	----

The labourers work 8 hours a day for 25 days a month.

The opening stocks of sub-assemblies and components for December, 20X2 are as under:

Sub-assemblies	Units	Components	Units
ACB	800	Base Board	1,600
MCB	1,200	IC08	1,200
DP	2,800	IC12	6,000
		IC26	4,000

Fixed overheads amount to ₹ 7, 57,200 for the month and a monthly profit target of ₹ 12 lacs has been set.

The company is eager for a reduction of closing inventories for December of Sub - assemblies and components by 10% of quantity as compared to the opening stock.

Prepare the following budgets for December :

(a) Sales budget in quantity and value.

(b) Production budget in quantity

(c) Component usage budget in quantity.

(d) Component purchase budget in quantity and value.

(e) Manpower budget showing the number of workers and the amount of wages payable.

UNIT & BATCH COSTING

PRACTICAL QUESTIONS

Question 1

X Ltd. Is committed to supply 22,000 bearings per annum to Y Ltd. on a steady basis. The budgeted opening and closing stocks are 4,000 & 6,000 bearings respectively. It is estimated that it costs 10 paise as inventory holding cost per bearing per month and that the setup cost per run of bearing manufacture is ₹ 324/-.

(a) What would be the optimum run size for bearing manufacture?

(b) Assuming that the company has a policy of manufacturing 6,000 bearings per run, how much extra cost the company would be incurring as compared to the optimum run suggested in (a) above.

(c) Minimum carrying cost at optimum level.

Question 2

A company has an annual demand from a single customer for 50,000 litres of a paint product. The total demand can be made up of a range of colour to be produced in a continuous production run after which a setup of the machinery will be required to accommodate the colour change. The total output of each colour will be stored and then delivered to the customer as single load immediately before production of the next colour commences.

The setup costs are ₹ 100 per setup. The service is supplied by an outside company as required.

The Holding costs are incurred on rented storage space which costs ₹ 50 per sq. meter per annum. Each square meter can hold 250 litres suitably stacked.

i. Calculate the total cost per year where batches may range from 4,000 to 10,000 litres in multiple of 1,000 litres and hence choose the production batch size which will minimize the cost.

ii. Use the economic batch size formula to calculate the batch size which will minimise total cost.

STANDARD COSTING

THEORY SECTION

(A) Brief Introduction:

In corporate sector, there is a separation of ownership from management. The owners do not manage the business and the managers are not the owners. Even in non-corporate sector, with gigantic business affairs, it is almost impossible for the owners to manage the business themselves.

Accordingly, owners are compelled to delegate authority to the managers. Since the managers have no proprietary interest in the business, it is quite possible that they may tend to be inefficient and a bit careless and because of this, the sales may come down, cost and rejection may increase resulting thereby in substantial loss of profit. For this reason, the owners feel, and rightly so, that the performance of various managers should be subjected to some degree of stringent control. There is a need to follow carrot and stick approach.

Control always presupposes some yardstick or standard. Accordingly, well before the period commences, detailed standards are laid down for various managers. These standards clearly show what is expected of the concerned managers. For example, in respect of sales, we lay down for sales manager, the types of products to be sold, the quantity of each of them to be sold and the price to be charged. At the end of the relevant period the actual results are compared with the expected ones (the standards) and the difference, known as VARIANCE, is analysed to throw light on the precise factors responsible for the variation. As far as the examination is concerned, this is the end. In real life, further investigation is undertaken, if the variance amount is very significant and corrective actions are taken so as to prevent adverse past from repeating itself in future.

We apply Standard Costing technique to six areas in all.

They are as follows :

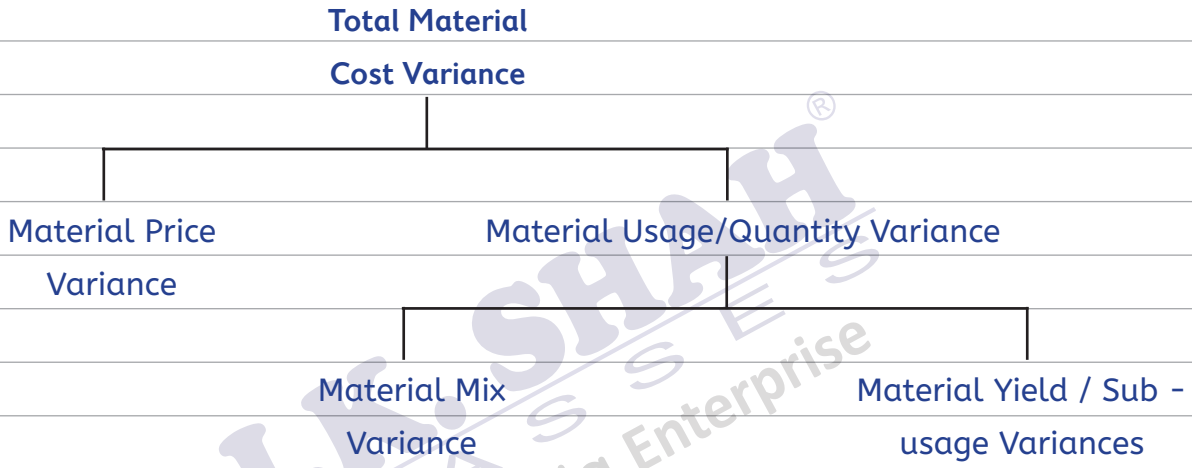
1. Material Cost
2. Labour Cost

3. Variable Overheads
4. Fixed Overheads
5. Sales
6. Profit

(B) EXPLANATION OF THE METHOD FOLLOWED IN THE SOLUTIONS:

1. MATERIAL COST VARIANCES:

The following is the chart of the material cost variances



Check

Total Material Cost Variance = Material Price Variance + Material usage Variance

Material Usage Variance = Material Mix Variance + Material Yield Variance

Detailed Explanation:

(i) Setting the standards:

As we saw, the actual results are to be compared with the Standards and for this purpose, we must have comparable Standards.

The material cost is a variable cost item and the amount of cost that one incurs entirely depends on the quantity of output. Thus, if the standard material cost per unit is ₹ 5, and if the actual output is 100 units, then, the standard cost is ₹ 500. **In other words in the case of material cost, the standards are always for the actual output.** If the production manager has produced, say, 1000 units, then we should find out the cost that he should have incurred for 1000 units and this cost should be compared with the actual cost to get the variance.

EXAMPLE:

Standards for 1 unit of product X :

Material	Quantity	Price per Kg.	Total Cost (₹)
A	5 Kgs.	2	10
B	10 Kgs	3	30
	15 Kgs.		**40**

The production manager has produced 1000 units and incurred the cost as shown below.

Material	Quantity	Price per Kg.	Total Cost (₹)
A	4800 Kgs.	2.5	12,000
B	10600 Kgs.	2.9	30,740
	15,400		**42,740**

Very obviously, the given standards which are for the output level of 1 unit (₹ 40) can't be compared with the actual for 1000 units (₹ 42,740). The given standards are to be revised to make them represent actual output level, so that they become comparable.

This process of revising the standards is extremely simple. Since the cost is variable in nature, the quantity figures and therefore the total cost figures are just to be revised proportionately. For example, 1 unit of X needs 5 Kgs. of Material A and therefore 1000 units should need 5000 Kgs. of material A. The revised standard are shown below.

Material	Quantity	Price per Kg.	Total Cost (₹)
A	5000	2	10,000
B	10,000	3	30,000
	15,000		**40,000**

In order to solve the problem, one should first pick up the information about the output level represented by the given Standards. One should, then pick up the actual output figure. If these two are same, then they are comparable and one should proceed further to calculate the variances. If they are not same, then given the Standards are to be proportionately revised to make them represent actual output level. **Thus, whether the given Standards need to be revised or not depends on whether the output levels are same or not.**

(ii) **Calculation of Variances:**

Total Material Cost Variance :

This variance shows the total loss or gain because of change in the total material cost. The variance is the difference between the total Standard material cost (obviously for actual output) and the total actual material cost.

Thus Material Cost Variance is :

Total Std. Material Cost - Total Actual Material Cost

Material Price Variance : (see also notes on Single / Partial Plans)

This variance accounts for that part of the total material cost variance which comes into being because of change in the material purchase price. Here, our aim is to know the total gain or loss because of change in the material purchase price.

The loss / gain per unit purchased and consumed can be calculated by simply comparing standard purchase price with the actual purchase price. However, we want to know the total gain or loss. The total loss / gain depends on the actual quantity purchased and consumed.

Thus the price variance is :

Actual Quantity X (Standard Price - Actual Price)

Material Usage Variance :

This variance accounts for that part of the total material cost variance which comes into being because of change in the consumption of raw material. Here, our aim is to know the total gain/loss because of the difference between material quantity consumed and the material quantity that should have been consumed.

Obviously, therefore, we have to compare the standard material quantity with the actual material quantity, the difference being the quantity of material lost or gained. In order to quantify this loss in money terms, we need to multiply this difference by the price of raw material.

We have two prices: Standard Price and the Actual Price.

Which price should be used?

We have to use standard price for this. This is based on the following reasons.

It is possible that there is some difference between the standard price and the actual price. However, it is the job of the price variance to take care of that difference and once that is taken care of, we are left with standard price alone. The difference between the two prices always gets transferred to profit & loss account.

In the organisation, there is division of labour. For change in the price, purchase manager is answerable whereas for change in the consumption of raw material, production manager is accountable. Now, if we multiply the quantity difference by the actual price, then the efficiency or otherwise of the purchase manager would affect the variance for the production manager. The price, therefore, has to remain constant and only Standard price remains constant.

The standards are developed well before the period commences and we let our production manager know the quantity of raw material that he should consume and in case the actual consumption is more (or less) then we also let him know the rate at which the penalty, or reward, will be calculated. That means the price has to be known to the production manager well before the budget period commences. Obviously only the standard price can be known in advance.

Thus the usage Variance is :

Standard material price X (standard raw material quantity-actual raw material quantity)

Material Mix Variance and Material Yield Variance

These two variances, put together account for the total material usage variance. If the raw material consumed is not same as standard, then, that could be because of two reasons in all. Either the mix of the input may change and/or the absolute quantity of material may change. Consider the following example

Material	Standard Quantity	Actual Quantity		
		(1)	(2)	(3)
X	50 Kgs	40	55	55
Y	50 Kgs	60	55	60
Total	**100 Kgs.**	**100**	**110**	**115**

As can be seen, in the first case, though the total input quantity is same as the standard, 10Kgs. of Y have replaced 10Kgs. of X. Thus, total quantity remaining same, the mix of input has changed. In the second case, though the mix of input items (1:1) has remained the same as the standard mix, the absolute quantity has gone up by 10Kgs. Thus, mix remaining constant, this time the actual quantity has changed. In the third case, the mix and the absolute quantity, both, have changed. In other words, change in the mix and / or change in the quantity account for total material usage variance. For the purpose of calculation of these variances, each of them is to be calculated by keeping the other of them constant. Thus, when we speak about the mix variance, we presume that the quantity consumed is quite upto

the mark and when we take-up yield variance, we presume that the mix is quite upto the mark.

Material Mix Variance:

Here our aim is to know whether the actual input of raw materials is as per standard or has changed. For this, we pick up the figure of total actual input and we apply the standard mix ratio to it and we get the mix that ought to be, given the actual input. We compare this standard mix with the actual mix and multiply the difference by the standard material price.

Thus material mix variance is:

Std. Material Price x (Std. Material Mix Quantity for Actual Input - Actual Mix Quantity)

Material Yield Variance:

This variance accounts for that part of the usage variance that comes into being because of change in the quantity of raw material consumed, the mix remaining constant. There are four methods for the calculation of this variance, as shown below:

1. **Based on Input:**

   We just compare the total standard input quantity with the total actual input quantity and we multiply the difference by the standard average cost. The standard average cost is the total standard cost divided by the total standard input quantity.

   Thus Material Yield Variance is:

   Std. Weighted Average Cost P.U. of Input x (Total Std. Input - Total Actual Input)

2. **Based on process loss:**

   Based on the actual input quantity, we find out the Standard process loss and we compare that with the actual process loss. The difference is output lost / gained because of excess / less rejection. We multiply this difference by the Standard average cost per unit of output.

   Std. Average Cost P.U. of Output x (Std. Loss for Actual Input - Actual Loss)

3. **Based on yield / output :**

   Based on the actual input quantity, we find out the Standard output and we compare that with the actual output. The difference is the output lost / gained. We multiply this difference by the Standard average cost per unit of output.

   Std. Average Cost P.U. of Output x (Std. Output for Actual Input - Actual Output)

4. Based on mix:

This time we compare the Standard mix of standard input with the Standard mix based on actual input (developed for the purpose of mix variance) and we multiply the difference by the Standard price of relevant material item.

Std. Material Price x (Std. Mix for Std. Input - Std. Mix for Actual Input)

2. LABOUR COST VARIANCE:

Detailed Explanation

(i) Setting the Standard :

Like Material cost, even this cost is also a variable cost item and therefore, like material cost, here also the Standards are to be for actual output. This means if the given Standards for labour cost do not represent actual output level, then, they must be proportionately revised to make them represent actual output level.

(ii) Calculation of variances :

The variance chart here almost resembles material variance chart with minor changes. In most of the cases the cost changes from material to labour and the variances are same. Accordingly, the explanations provided in respect of material cost variances is equally applicable to labour cost variances and therefore these details are not repeated.

Total Labour Cost Variance :

This variance is the difference between the total Standard labour Cost (for actual output) and total actual labour cost.

Thus Labour Cost Variance is :

Total Std. Labour Cost - Total Actual Labour Cost

Rate of Pay Variance :

This is just like material price variance. The Variance is actual number of hours paid for multiplied by the wage rate difference.

In other words, it is :

Actual Hours X (Standard Rate - Actual Rate)

Labour Efficiency Variance :

This is just like material usage variance. The variance is Standard wage rate multiplied by the difference between Standard hours and actual hours paid for.

Thus Labour Efficiency Variance is :

(Std. Hours - Actual Hours) x Standard Rate

Idle time Variance : This is abnormal idle hours for various categories multiplied by applicable standard wage rates If there are two or more categories, then category wise break-up of idle time would, normally, be given. If not given, we must put presumption to get the break up. Preferably, the presumption should be that idle hours were in standard ratio.

Thus Idle Time Variance is :

Idle Time x Standard Rate

Labour Mix Variance :

This is just like material mix variance. Thus, we apply the Standard mix ratio to the actual input of hours worked and we get Standard mix for actual total hours. **If there is idle time, it should be deducted from the gross input hours and the Standard ratio should be applied to the actual or productive hours paid for.** This is because, out of gross hours, Idle time variance accounts for idle hours. Therefore, we now have to account for net hours worked.

Thus Labour Mix Variance is :

[Std. Mix for Actual Net Hours - Actual Mix (Net)] x Std. Rate Per Hour

Labour Sub Efficiency Variance :

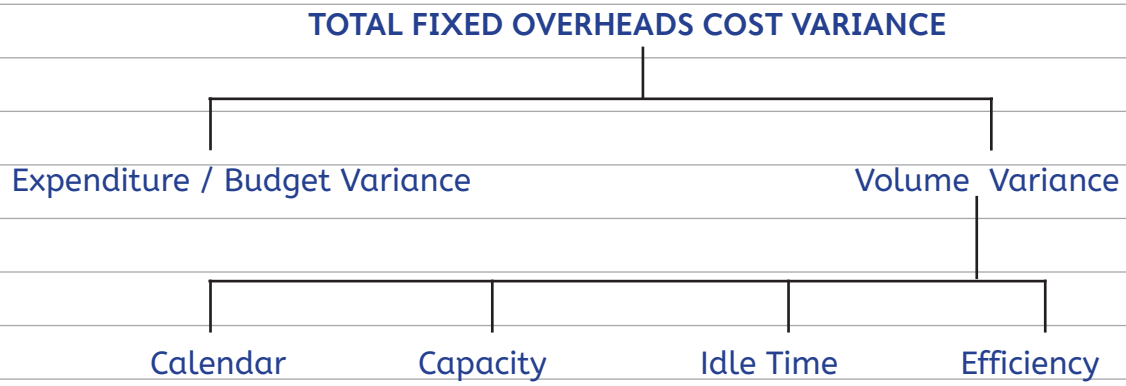
This is just like material yield variance based on input. We compare total standard hours with the total actual (but net i.e. excluding idle time) input hours and we multiply the difference by Standard average rate per hour (Total Standard Cost = Standard input hours)

Thus Labour Sub Efficiency Variance is :

(Total Std. Hours - Total Actual Net Hours) x Std. Weighted Average per hour

3. FIXED FACTORY OVERHEADS VARIANCES: (BASED ON ABSORPTION COSTING) :

The following is the chart of the fixed factory overheads cost variances under absorption costing:



Check:

Total Cost Variance = Expenditure Variance + Volume Variance

Volume Variance = Calendar Variance + Capacity Variance + Idle Time Variance + Efficiency Variance.

Detailed Explanation :

(i) Setting the Standards :

Unlike the Raw Material Cost, this cost does not depend on the output. Rather, it depends on the period because it is a period cost. Obviously, therefore, the standards or, say budgets, are always for a period. Very soon we shall see that for calculating variances, we sometimes compare days, hours, expenditure and output figures for the given period and therefore we should know budgets as regards these items.

(ii) Basic explanation about fixed overheads variances :

For setting the selling price of a product, we generally add profit margin to the total cost. The total cost is the sum total of variable cost and fixed cost. Variable cost per unit is reasonably simple to get because it depends on the output. However, the fixed cost has nothing to do with the output, and the total cost remains constant irrespective of the quantity of the product that we produce. Then, how do we get the fixed cost per unit?

For this, we have a system of recovering the overheads. Well before the budget period commences, we make an estimate as regards fixed overheads to be incurred and the quantity of the product to be produced Though there is no nexus between the cost and the output, after all the output that we are going to have, must bear the charge of overheads cost that we are going to incur. Thus, we lay down nexus between the two and divide the budgeted overheads by the expected output and we get overheads per unit.

Once, we get the Fixed Overheads rate per unit, every time we produce a unit we charge the overheads at this predetermined rate. If everything goes as per our expectation, then, we notice at the end of the period that overhead amount charged to the output is exactly equal to the overheads cost incurred and thus, there is no variance. In other words, the overheads cost variance comes into being if the overheads charged or, say, recovered are not some as overheads incurred.

(iii) Calculation of variances :

Fixed Overheads Cost Variances :

This variance comes into being if there is some difference between overheads

recovered (obviously, on the basis of actual output) and overheads cost incurred. Thus, this variance is under or over-absorption of overheads.

Consider the following example:

	Budget	Actuals			
		A	B	C	D
Fixed Overheads	₹ 1,00,000	1,00,000	90,000	1,10,000	96,000
Output (units)	25,000	24,000	25,000	24,000	24,000
Absorption rate per unit	₹ 4				

In situation A, the amount recovered is ₹ 96,000 (24,000 X 4) whereas amount spent is 1,00,000. The amount spent is more which means there is under-recovery of overheads and the variance comes into being. Here, whereas Fixed overheads, have remained constant, the output has changed. In situation B, the amount recovered is ₹ 1,00,000 whereas amount spent is ₹ 90,000. There is over-recovery of overheads and the variance comes into being. Here, whereas output has remained the same, the overheads have changed.

In situation C, the amount recovered is ₹ 96,000 whereas the amount spent is ₹ 1,10,000. Again, there is under recovery of overheads. This time overheads and output, both, have changed but not proportionately.

In situation D, though overheads and output, both, have changed, there is still no variance because the amount spent (₹ 96,000) and the amount recovered (24,000 X 4) are same.

This should suggest that the total overheads cost variance comes into being, if either only overheads change, output remaining constant, or only output changes, overheads remaining constant, or both of them change, but not in the due proportion. Under-absorption implies that the actual fixed overheads cost per unit is more than the standard cost whereas over-absorption implies that the actual fixed overheads cost per unit is less than the standard cost. Absence of under / over absorption implies that the actual fixed overheads cost, per unit is same as standard cost. Accordingly, under-absorption is an adverse variance whereas over absorption is a favourable variance.

In other words, if output and overheads, both remain constant or both of them change but just in due proportion, then, there is no overheads cost variance at all.

To conclude, one should compare the amount of overheads recovered with the amount of overheads spent and the difference is the variance. Over-recovery signifies the favourable variance whereas under recovery signifies the adverse variance.

Thus Fixed Overheads Cost Variance is :

Fixed Overheads Absorbed - Actual Fixed Overheads

Fixed Overheads Expenditure Variance :

Just compare budgeted overheads with the actual amount spent and the difference is the variance.

Thus Fixed Overheads Expenditure Variance = Budgeted Fixed Overheads - Actual Fixed Overheads

Fixed Overheads Volume Variance :

We just compare the volume or the output figures and the difference is to be multiplied by the recovery rate per unit. If the actual output is more than the budgeted output, the variance is favourable (because higher output reduces the overheads cost per unit) and if the actual output is less, the variance is adverse.

Thus Fixed Overheads Volume Variance is :

(Budgeted Output - Actual Output) x Absorption Rate P.U.

The analysis of volume variance is required to know the precise factors responsible for change in the output. The output depends on so many factors like number of working days, number of hours in working days, unproductive (idle) time and efficiency level.

Consider the following budget:

No. of days	250
Hours per day	500
Hours per unit	5
∴ Total Hours p.a.	1,25,000
∴ Total output p.a.	25,000

Calendar Variance

Now if, instead of working for 250 days, the workers work for 251 days, then, other factors remaining constant, hours would increase by 500 and the output would increase by 100. The variance that comes into being because of change in number of days is called **calendar Variance**. We should compare the number of days as per budget with actual number of days and the difference should be multiplied by the recovery rate per day. If the actual number of days is more, then, the variance is favourable because the more the days, the more the hours and the more the output.

Thus Calendar Variance is :

(Budgeted Days - Actual Days) x Absorption Rate Per Day

Capacity Variance

Now, days remaining constant, if the workers work for more or less than 500 hours per

day, then, again the output would change. The variance that comes into being because of change in such capacity utilization is known as capacity Variance. We find out the number of hours that should have been paid for in actual number of days and we compare this with the actual number of hours paid for. The difference is multiplied by the recovery rate per hour. If the actual number of hours is more, then, the resultant variance is favourable because the more the hours, the more the output.

Capacity Variance = (Std. hours for Actual Days - Actual Hours)
Absorption Rate per Hour

Sometimes in the problem, the student is not given information about number of days. In such cases, the calendar variance cannot be calculated. Even the capacity variance, in the manner shown above, cannot be calculated. In such cases, we compare budgeted hours with actual hours paid for. The difference is to be multiplied by the recovery rate per hour. This comparison takes care of calendar and capacity both. Therefore, if the information about days is not given, then, we calculate this variance and call it capacity variance. If the information about days is given, then we calculate calendar variance and capacity variance in a normal way but we use this variance (direct comparison of hour) as crosscheck. This variance has to be equal to calendar variance plus capacity variance.

If No. of Days are not given

Capacity Variance = Budgeted hours - Actual hours) Absorption per hour Rate

Capacity Variance by Alternate Method = Calendar Variance + Capacity Variance by Normal Method

The idle time variance is calculated by multiplying idle hours by recovery rate per hour.

Idle Time Variance = Idle Time x Absorption Rate per hour

The Efficiency Variance can be calculated in one of the two possible ways, as shown below:

i) We find out the number of units that should have been produced in actual number of hours **(net, excluding idle time)**. We compare this with the actual output and the difference is to be multiplied by the recovery rate per unit.

Efficiency Variance = [(Std. output in Actual Net hours - Actual output)] x Absorption rate p.u.

OR

ii) We find out the number of hours that should have been taken for the actual production and we compare this with actual number of hours **(net, excluding idle time)** taken. The difference is to be multiplied by the recovery rate per hour.

Efficiency Variance = (Std. hours for Actual Output - Actual Net hours) Absorption rate per hour

Fixed overhead Cost Variance

(Absorbed Overhead – Actual Overhead)

(Actual units x Absorption Rate per unit)

How much we have actually incurred & How much we have actually recovered

Fixed Overhead Expenditure Variance

(Standard Overhead – Actual Overheads)

How much we should have incurred & how much we actually have incurred.

Fixed Overhead Volume Variance

(Standard Unit – Actual Unit) x Absorption Rate per unit

How many units we should have produced and How many units we actually produced

Fixed Overhead Capacity Variance

(Standard hours – Actual hours) x AR/hr.

How many hours workers should have come to the factory and how many hours workers actually came

Fixed Overhead Idle Time Variance

Idle house x AR / hr

Fixed Overhead Efficiency Variance

As per time (OR) **As per Output**

Standard hours for actual output	xxx
(-) Actual hours worked	(xxx)
	xxx
x A.R / hr	xx
	xxx

How many hours workers should have worked for actual output & how many hours workers actually worked.

Standard units in	xxx
Actual hrs. worked (-)	(xxx)
Actual units	xxx
	xxx
x A.R/unit	xx
	xxx

How many units workers should have produced in actual hours worked & how many units workers actually produced.

Fixed Overhead Calendar Variance

(Standard hours – Actual hours) x AR/hr.

How many days workers should have come to the factory & how many days workers actually came

Fixed Overhead Capacity Variance

Standard hrs in actual days		xxx
(-)	Actual hours	(xxx)
		xxx
X	A.R/hr	x
		xxx

How many hours workers should have come in actual days & how many hours workers actually came.

If in examination we have not given information of days we shall not compute calendar variance and his time both fixed overhead capacity & net capacity variance will be same.

4. VARIABLE FACTORY OVERHEADS VARIANCES :

The following is the chart showing variable factory overheads variances.

TOTAL VARIABLE OVERHEADS COST VARIANCE

Variable Overhead Spending / Budget / Expenditure Variance	Variable Overhead Efficiency / Utilization Variance

Check :

Total Variable Overheads Cost Variance = Spending Variance + Utilization Variance

Detailed Explanation :

i) **Setting the Standards :**

This cost, being variable in nature, depends on the actual output and therefore, like material cost and labour cost, the Standards are always for actual output.

ii) **Calculation of Variances :**

Total Variable Overheads Cost Variance :

This is the difference between total Standard Variable Cost and total actual variable cost.

Variable Overheads Cost Variance = Total Standard Cost - Total Actual Cost

Variable Overheads Spending Variance :

This is just like labour rate of pay variance. Thus, we multiply the rate difference by the actual labour hours paid for.

Variable Overheads Spending Variance = (Standard Rate - Actual Rate) Actual hours

Variable Overheads Utilization Variance :

This is just like labour time variance. Thus, we multiply the labour hours difference by the standard variable overheads rate per hour.

Variable Overheads Utilisation Variance = (Standard Hours - Actual Hours) Standard Rate

Here, the actual no. of hours to be used should be gross no. of hours if the variable overheads cost is incurred during the idle time. if it is not incurred during the idle time, then, we should use net no. of hours.

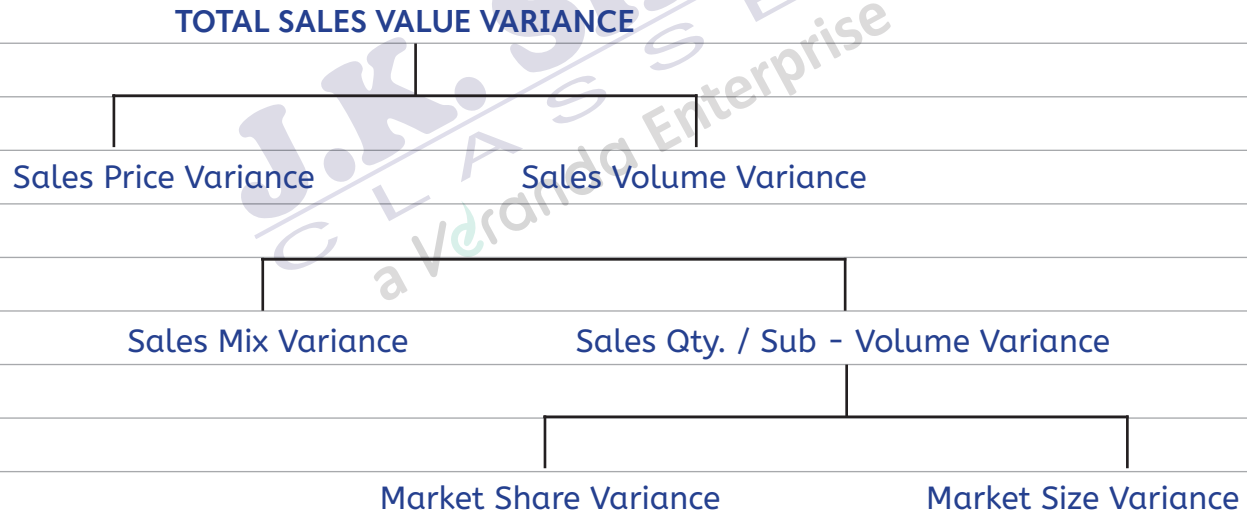
Note:

Though the analysis of Variable Overheads Cost Variance, as explained above is possible, normally people calculate only the total variable overheads cost variance. The other variances are not calculated normally. There are some obvious reasons for this. The Spending Variance is rarely controllable. (Example: Increase in the electricity rate) The Utilization variance comes into being if workers take more or less time and this factor is looked into when we calculate labour time variance. There is no point, in real life situation, in repeating the investigation. Thus, once workers take more time, variable overheads utilization also increases. Therefore, the people are not interested in analysing the total variable overheads cost variance.

It may also be noted that labour hours are common for labour cost variances and variable overheads cost variance.

5) SALES VARIANCES :

The chart is as shown below :



NOTES:

1) **Budget for Comparison :** The sales targets are always for a period. The budget to be compared with the actual result has to be for the same period for which the actual results are given. Thus, whenever the budget is for the same period for which the actual results are given, the given budget itself is comparable with the actual and no revision is required. On the other hand, if the budget is not for the same period for which the actual results are given, the given budget has to be revised to make it represent the same period for which the actual results are given. Since we are talking about revenue and not the expenses, it

is obvious that if actual quantity or price is mroe than the budget, then it gives us favourable variance.

2) **Total sales value variance :** This is the difference between the budgeted sales and the actual sales.

Total Sales Value Variance = Total Budgeted Sales - Total Actual Sales

3) **Sales Price variance :** This is just like material price variance and we get it by multiplying the sales price difference by actual quantity sold.

Sales Price Variance = (Standard Sales Price - Actual Sales Price) x Actual Sales Quantity

4) **Volume Variance :** This is just like material usage variance and we get it by multiplying the sales quantity difference of each product by standard selling price.

Sales Volume Variance = (Budgeted Sales Qty. - Actual Sales Qty.) x Standard Sales Price

5) **Sales Mix Variance :** This is very usual mix variance. Accordingly, we apply standard ratio to the actual total quantity sold and we develop standard sales mix.

We compare this with the actual sales mix and the difference is to be multiplied by standard selling price of each product.

Sales Mix Variance = (Standard Sales Mix for Actual Total Sales Qty. - Actual Sales mix) x Std. S.P.

6) **Sales Qty./Sub-Volume Variance :** This is just like material yield variance based on input and we get it by multiplying the total sales quantity difference by the standard average selling price per unit.

Sales Qty. Variance = (Total Std. Sales Qty. - Total Actual Sales Qty.) x Std. Weighted Avg. Sales Price p.u.

7) **Market Share Variance :** This is the change in total sales quantity due to change in market share. We multiply the actual market size by standard market share percentage to get standard sales quantity figure. We compare this with actual sales quantity and multiply the difference by standard average sales price per unit.

Market Share Variancce = Change in Sales Qty. due to charge in Mkt. Share x Std. Weighted Avg. S.P.P.U.

8) **Market Size Variance :** This is the change in total Sales quantity due to change in market size, multiplied by standard average sales per unit. We multiply the market size difference by standard market share percentage to get the change in total sales quantity.

Market SIze Variance = Change in Sales Qty. due to Change in Mkt. Size x Std. Weighted Avg. S.P.P.U.

PROFIT VARIANCES

The Chart is as shown on the last page of notes on this chapter.

NOTES:

1) Like Sales, the profit targets are also for the period and whenever the given budget is not for the same period for which the actuals are given, the given budget has to be revised. Also, the actual profit being more would be a favorable variance.

2) **Total Profit Variance :**

This is the difference between total budgeted profit and actual profit.

(A) Profit Variance due to change in Sales :

This part of the chart is very similar to sales value variance chart. The only difference being the sales quantity difference is to be multiplied by standard sales price in sales value chart whereas the same quantity difference is to be multiplied by standard profit per unit in this part of the chart. The quantity variances in the two charts would be different only because of the difference between standard sales price and standard profit. The sales price variance in both charts is the same.

(i) Profit Variance due to change in S.P.

This is usual price variance which we get by multiplying actual sales quantity by the sales price difference.

(ii) Profit Variance due to change in sales volume:

We get this variance by multiplying the sales quantity difference of each product by the standard profit per unit.

(iii) Profit Variance due to change in Sales Mix :

This is usual mix variance and we get it by multiplying standard profit by the mix difference.

(iv) Profit Variance due to change in Sales Qty.

This is usual quantity variance and we get it by multiplying the **total sales quantity** difference by standard average profit per unit.

(a) / (b) : These Variances are same as those in the sales chart, the only difference being, we multiply the quantity difference by standard average net profit per unit.

(B) Profit Variance due to change in Cost :

If only the total standard cost and actual cost per unit are given without breakup into material cost, labour cost etc., then we calculate only the total

variance in the same way as we calculate sales price variance. Thus, we get it my multiplying the cost difference by the actual quantity **Produced** per unit.

If the break-up of cost is given then all variances in respect of each cost item are to be calculated by following usual principles applicable to a particular cost item.

(i) Change in Material Cost :

These are usual material cost variances and we compare the standards for actual output with the actuals and get normal Material Cost Variances.

(ii) Change in labour Cost :

We follow usual principles applicable to labour cost variacnes and get the normal variances.

(iii) Change in Variable Cost :

We follow usual principles applicable to Variable Overheads cost Variances and get the normal variances.

(iv) Change in Fixed Overheads Cost :

We follow usual principles applicable to Fixed overheads cost variances and get the normal Variances.

(v) Change in Administration / Fixed S & D overheads : (under financial accounting)

As regards fixed expenses, we calculate only one variance which is Fixed Overheads expenditure variance. We calculate the same by comparing budgeted fixed overheads with actual Fixed Overheads. It should be noted that whereas Fixed production overheads cost variance is to be analysed into expenditure and volume variance, under absorption costing, the admn. and S & D fixed cost variance is only in respect of expenditure and there is nothing like volume variance here.

Under marginal costing, there would be only expenditure variance for all types of fixed overheads.

If there is variable S & D overheads given then we develop the standards for actual quantity sold and the standard S & D variable cost would be compared with actual S & D cost to get Total variable S & D cost variance.

Valuation of raw material stock and calculation of price variance

There are two methods for accounting for variances and the stock valuation as well as the calculation of price variance would depend on the method of accounting selected.

The methods are:

a) Single Plan b) Partial Plan

A) Single Plan :

Under this method the price variance is based on actual quantity purchased and accordingly the stock would be obviously valued at standard price. The usual stock valuation methods like FIFO, LIFO, etc. have no relevance because the opening stock and closing stock would both be valued at standard price.

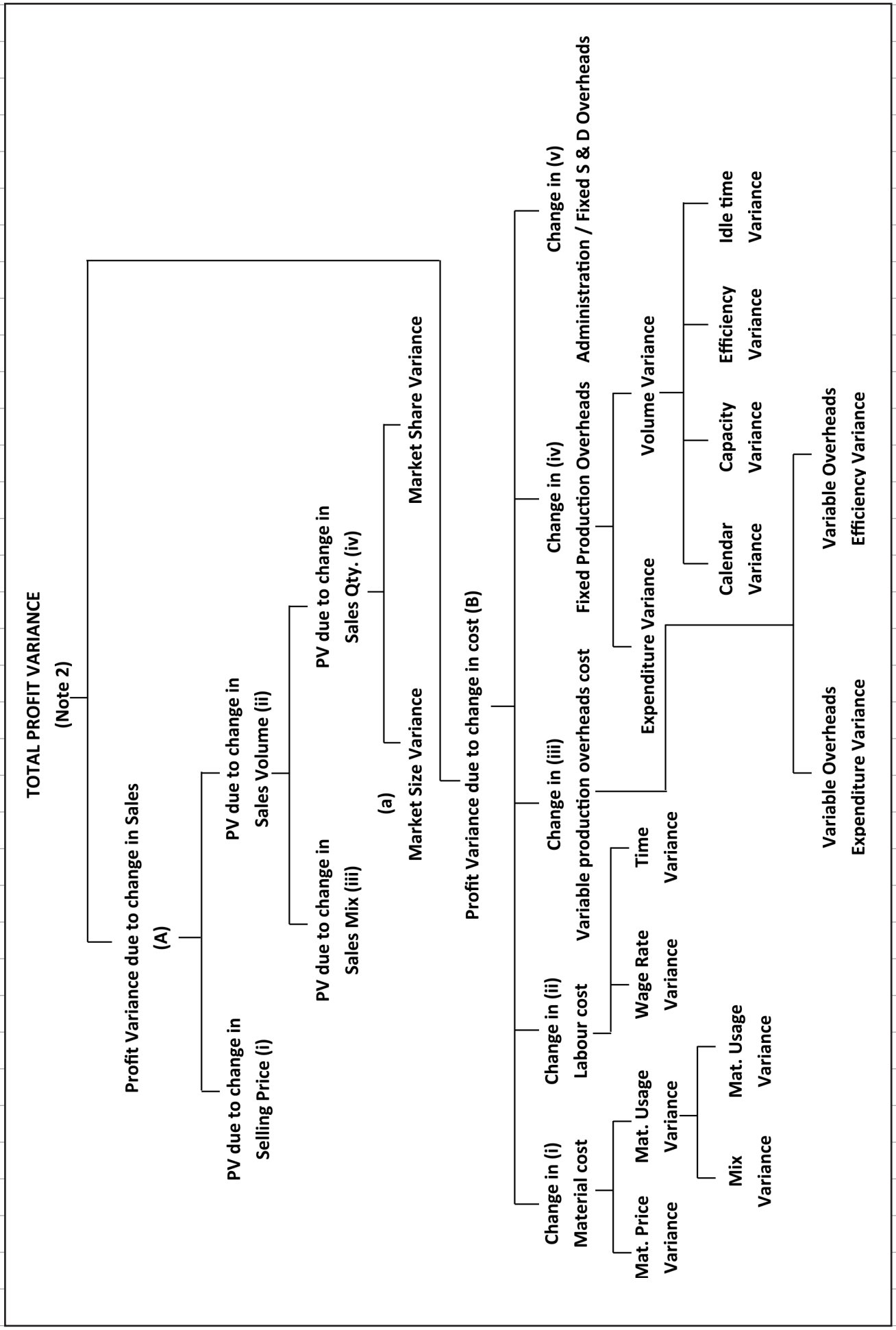
In case the standards are revised, then the opening stock valuation would be revised by valuing the quantity at revised standard price and the difference would be treated as the price variance of the period in which the revision takes price.

B) Partial Plan :

Under this method, the price variance is based on actual quantity consumed and accordingly, the stock has to be valued at actual purchase price.

If the opening stock is there, purchased at a price other than the current purchase price, we need to follow FIFO or LIFO method for valuation of stock as well as calculation of price variance.

If may be noted that revision of standards would not effect the opening stock valuation because the opening stock is valued at actual price.


TOTAL PROFIT VARIANCE
(Note 2)
Profit Variance due to change in Sales
(A)
PV due to change in
Selling Price (i)
PV due to change in
Sales Volume (ii)
PV due to change in
Sales Mix (iii)
PV due to change in
Sales Qty. (iv)
(a)
Market Size Variance
Market Share Variance
Profit Variance due to change in cost (B)
Change in (i)
Material cost
Mat. Price
Variance
Mat. Usage
Variance
Mix
Variance
Mat. Usage
Variance
Change in (ii)
Labour cost
Wage Rate
Variance
Time
Variance
Change in (iii)
Variable production overheads cost
Expenditure Variance
Variable Overheads
Expenditure Variance
Variable Overheads
Efficiency Variance
Volume Variance
Calendar
Variance
Capacity
Variance
Efficiency
Variance
Idle time
Variance
Change in (iv)
Fixed Production Overheads
Change in (v)
Administration / Fixed S & D Overheads

PRACTICAL QUESTIONS

Question 1

The standard cost of a chemical mixture is as follows:

40% material A at ₹ 20 per kg.

60% material B at ₹ 30 per kg.

A standard loss of 10% of input is expected in production. The cost records for a period showed the following usage :

95 kg material A at a cost of ₹18 per kg.

115 kg material B at a cost of ₹ 34 per kg.

The quantity produced was 180 kg. of good product.

Calculate all material variances.

Question 2

X Ltd. manufactures product X which requires 2 hours of skilled men, 3 hours of semi-skilled men and 5 hours of unskilled men per unit at ₹ 5, 3 & 2 per hour respectively.

During January 2018, the production department reported output of 5000 units of product X. The labour cost incurred was as detailed below:

Type	Hours paid for	Rate per hour
Skilled	9,000	₹ 7
Semi-skilled	17,000	₹ 2.75
Unskilled	30,000	₹1.50
	56,000	

The total hours paid for included 1000 idle hours due to machine break down etc., out of which 500 hours pertained to skilled men, 400 hours pertained to semi - skilled men and balance to unskilled men.

Required:

1. Calculate labour cost variances.
2. Recalculate the labour cost variances, given that the break up of 1000 idle hours is not given.

Question 3

The following data has been collected from the cost records of a unit for computing the various fixed overhead variances for a period:

Number of budgeted working days	25
Budgeted man-hours per day	6,000

Output (budgeted) per man-hour (in units)	1
Fixed overhead cost as budgeted	₹ 1,50,000
Actual number of working days	27
Actual man-hours per day	6,300
Actual output per man-hour (in-units)	0.9
Actual fixed overhead incurred	₹ 1,56,000

Calculate fixed overhead variances:

(a) Expenditure Variance

(b) Volume Variance,

(c) Fixed Cost Variance.

Question 4

SJ Ltd. has furnished the following information:

Standard overhead absorption rate per unit	₹ 20
Standard rate per hour	₹ 4
Budgeted production	12,000 units
Actual production	15,560 units

Actual overheads were ₹ 2,95,000 out of which ₹ 62,500 fixed .

Actual hours 74,000

Overheads are based on the following flexible budget

Production (units)	8,000	10,000	14,000
Total Overheads (₹)	1,80,000	2,10,000	2,70,000

You are required to calculate the following overhead variances (on hour's basis) with appropriate workings:

(i) Variable overhead efficiency and expenditure variance

(ii) Fixed overhead efficiency and capacity variance.

Question 5

Compute the sales variances (total, price and volume) from the following figures:

Product	Budgeted quantity	Budgeted Price per unit (₹)	Actual quantity	Actual Price per Unit (₹)
P	4,000	25	4,800	30
Q	3,000	50	2,800	45
R	2,000	75	2,400	70
S	1,000	100	800	105

Question 6

The standard profit per unit of Y is ₹ 3/- ascertained as follows:

	(₹)
Standard cost per unit	
Materials (4 Kg at ₹ 1.50)	6.00
Labour (5 hours at ₹ 0.80)	4.00
Overheads -variable at ₹ 0.30 per hour	1.50
Fixed at ₹ 0.50 per hour	2.50
Total cost per unit	14.00
Profit per unit	3.00
Selling price	17.00

The standard cost statement has been drawn up on the basis of the production and sales of 4000 units per month as against the available capacity of 5000 units. For the month of March, the following profit and loss emerged:

	(₹)	(₹)
Sales (3,500 units)		66,000
Less: Cost of goods produced:		
Materials at ₹ 1.40 per kg	21,000	
Labour at ₹ 0.85 per hour	15,640	
Variable overheads	5,200	
Fixed overheads	10,500	(52,340)
Actual Profit		13,660

Failure of power led to idleness of 1,000 hours.

You are required to reconcile the actual and standard profits on the basis of variances.

Question 7

Following data is available for DKG and Co:

Standard working hours	8 hours per day of 5 days per week
Maximum capacity	50 employees
Actual working	40 employees
Actual hours expected to be worked per four week	6,400 hours
Std. hours expected to be earned per four weeks	8,000 hours
Actual hours worked in the four- week period	6,000 hours
Standard hours earned in the four- week period	7,000 hours.

The related period is of 4 weeks. In this period there was a one special day holiday due to national event. Calculate the following ratios:

(1) Efficiency Ratio,

(2) Activity Ratio,

(3) Calendar Ratio,

(4) Standard Capacity Usage Ratio,

(5) Actual Capacity Usage Ratio.

(6) Actual Usage of Budgeted Capacity Ratio.

MARGINAL COSTING

THEORY SECTION

1. Absorption Costing v/s Marginal Costing:

Under adsorption costing, the fixed overheads (fixed production overheads under financial accounting system and fixed production and administration overheads under cost accounting system) are charged to the output. To the extent, the output remains unsold i.e. closing stock, its valuation would include not only the variable production cost but also the fixed overheads. This implies that part of the current period's fixed cost is effectively converted into an asset and carried forward and charged to the next period. Likewise the opening stock valuation also includes the fixed overheads of previous period.

Unlike that, under marginal costing, the fixed overheads are all treated as period cost items and are charged to the period rather than the output. Accordingly, the stock valuation includes only the variable factory or production cost and not the fixed charge.

For the normal accounting purposes, absorption costing is very widely accepted but for management accounting purpose, it is only the marginal costing technique that is to be used.

The profit and loss statement based on two different methods would give us two different profit figures and the difference would be only because of stock valuation, (difference in respect of opening and closing stock), and under cost accounting, under/over absorption, if it is carried forward.

Incidentally it may also be noted that usual analysis of fixed overheads variance, based on recovery, into expenditure variance, volume variance etc. presupposes that the company follows absorption costing. If at all it is specifically given that the company follows marginal costing then, the usual analysis is irrelevant and we need to calculate only one variance i.e. fixed overheads expenditure variance.

2. Absorption Costing: Limitations:

(i) Fixed cost treated as product cost.

(ii) Fixed cost is included in closing stock.

(iii) Entire fixed cost is not written off.

(iv) The more the production, the more the profit.

3. Marginal Costing: Advantages:

(i) Fixed cost treated as period cost.

(ii) Fixed cost is not included in closing stock.

(iii) Entire fixed cost is written off.

(iv) The more the sales, the more the profit.

4. Other chapters under Marginal Costing :

(i) Cost Sheet: Change in the form.

(ii) Reconciliation: Marginal: Fixed cost written off.
Absorption: Difference may be carried forward under cost accounting.

(iii) Overheads: Budgeted overheads not to be divided by budgeted level of activity.

(iv) Process Costing: Factory fixed overheads not to be debited to process account.

(v) Joint product / By product: Joint cost to be apportioned is joint variable factory cost.

(vi) Integral / Non Integral: Factory fixed overhead/Fixed Admn. overhead to be transferred to cost of sales a/c.

(vii) Budgetary control: Stock valuation to be divided by variable production cost per unit.

(viii) Standard costing: Only expenditure variance (see part 4 for details)

(ix) Contract costing: Work not certified (WUC) not be include fixed cost.

(x) Operating costing

(xi) Material cost control No change

(xii) Labour cost control

5. Break-even analysis:

Vital presumptions:

This analysis, known as break-even analysis or contribution-margin analysis or cost volume profit analysis is based on following three presumptions, it being used at planning stage.

(i) Sales price per unit always remains constant.

(ii) The variable cost per unit always remains constant.

(iii) The fixed cost for the period always remains constant.

This means that the contribution would always be some fixed percentage of sales. Also the contribution-minus fixed cost is net profit just as contribution minus net profit is fixed cost or fixed cost plus net profit is equal to contribution.

6. Break even point:

This is financial break-even point. It is the level of sales required to get no loss and no profit situation. In other words, it is the level of sales that gives us the contribution which is exactly equal to the amount of fixed cost.

To get the break-even point, we need to know the amount of fixed cost and the relationship between sales and contribution (known as profit/volume ratio). Amount of fixed cost is the amount of contribution required and the P/v ratio is the rate at which contribution will be earned. By using these two, we can easily calculate break-even point. The break-even point can be expressed in terms of value or volume.

7. Profit-Volume ratio :

This is the relationship between the sales and contribution. Everytime sales are increased by ₹ 100 the contribution and therefore the net profit would increase by the amount which is at the rate of P/v ratio. Likewise everytime sales of ₹ 100 are lost, the contribution and therefore the net profit would be lost by the amount at the rate of P/v ratio.

8. Margin of Safety :

This is the positive difference between the actual sales and the break even sales. The more the amount of margin of safety the more should be the safety that the company enjoys because, even if the sales fall by the amount of margin of safety, the company still would not make the losses. Thus, it is Actual sales minus Break even sales. This can be expressed in units or amount.

9. Margin of safety ratio :

This is margin of safety expressed as a percentage of the actual sales. Thus, it is margin of safety divided by actual sales. It implies that even if sales fall by the margin of safety percentage, the company still would be very safe in the sense that it will not be making losses. Net profit devided by contribution also gives this ratio.

10. General observations :

(i) If sales and contribution at any given point of time are known then, by using the presumption that there is constant relationship between the two, we can get P/v ratio by dividing contribution by sales.

(ii) If we have net profit of any two periods as also the sales of the same periods, the difference between two profit figures would be nothing but the amount of contribution, fixed cost remaining fixed, earned on sales which is the difference between two sales figures. When we divide contribution difference by sales difference, we get P/v ratio.

(iii) Fixed cost is contribution on break even sales and therefore if any two of break-even sales, P/v ratio and fixed cost are given to us, the third one we can calculate (e.g.. If we divide the fixed cost by the break even sales, we get the P/v ratio.).

(iv) Margin of safety is sales above the break even point and the contribution earned above the break even point is net profit. In other words, net profit is contribution on margin of safety and therefore, if we divide net profit by margin of safety, we get the P/v ratio.

(v) Given the sales, P/v ratio and fixed cost, we can easily calculate the expected net profit and likewise given the target net profit, fixed cost and P/v ratio, we can easily calculate the sales required to meet the profit target. Similarly given the sales, P/v ratio and the net profit, we can find out the expected fixed cost.

(vi) All observations written above are subject to the vital presumptions written in note 5. Therefore, if the presumptions fails, then the calculations would have to be changed accordingly.

11. Types of Break-Even Points :

(i) The usual break-even point where normal fixed cost is considered.

(ii) Cash Break-even point where only the cash fixed cost is considered.

(iii) Shut down point where only the additional fixed charge is considered.

(iv) Cost Break-even point.

(v) Profit Break-even-point.

12. Determination of Profitable Mix:

(a) When there is NO limiting factor:

The total fixed cost to be incurred remaining constant, the product which offers more contribution per unit is more profitable product because it would maximise the total contribution and therefore the net profit. Accordingly, calculate

contribution per unit or the total contribution that each product makes and the product which offers highest contribution will be taken as most profitable one and so on. As long as the contribution per unit is positive, the product is profitable. The product priorities and withdrawal of a product should be decided on the basis of contribution that each product - offers and not the net profit. If the demand for various products is of complementary nature, then the total contribution based on various product combinations should be considered. Also, if the fixed cost changes, as the product mix changes, then, that should also be considered which means that the decision is based on net profit. However, absorption costing should be completely ignored for such decisions.

(b) When there is limiting factor:

Whenever some resources are required for products and are not adequately available, these resources become limiting factor. Likewise, if demand is not adequate, demand becomes limiting factor. If there are some limiting factors, then the product which gives more contribution per unit may not give more amount of total contribution because it may not make more profitable use of the limited resources.

In such cases, we can calculate contribution per unit of limiting factor and the product which offers more contribution per unit of limiting factor is to be treated as more profitable product and the product priority order is to be accordingly calculated. We divide the contribution per unit by the number of units of limiting factor required per unit of the product. If one limiting factor is on production side and the other on the sales side, then, we first calculate contribution per unit of limiting factor on production side and we decide on the product priority order. Keeping in mind that and the demand limitation of each product, we make the allocation of limited resources to get the most profitable product mix.

If there are two or more constraints on production side, then the most profitable mix can be developed either by graphical method (if there are only two products) or by simplex method (if we have three or more products).

PRACTICAL QUESTIONS

Question 1

The ratio of variable cost to sales is 70%. The break-even point occurs at 60% of the capacity sales. Find the capacity sales when fixed costs are ₹ 90,000. Also compute profit at 75% of the capacity sales.

Question 2

An automobile manufacturing company produces different models of Cars. The budget in respect of model 007 for the month of March, 20X5 is as under:

Budgeted Output 40,000 Units

	₹ In lacs	₹ In lacs
Variable Costs:		
Materials	264	
Labour	52	
Direct expenses	124	440
Specific Fixed Costs	90	
Allocated Fixed Costs	112.50	202.50
Total Costs		642.50
Profit		57.50
Sales		700.00

Calculate:

(i) Profit with 10 percent increase in selling price with a 10 percent reduction in sales volume.

(ii) Volume to be achieved to maintain the original profit after a 10 percent rise in material costs, at the originally budgeted selling price per unit.

Question 3

An Indian soft drink company is planning to establish a subsidiary company in Bhutan to produce mineral water. Based on the estimated annual sales of 40,000 bottles of the mineral water, cost studies produced the following estimates for the Bhutanese subsidiary:

	Total annual costs	Percent of Total Annual Cost which is variable
Material	2,10,000	100%
Labour	1,50,000	80%
Factory Overheads	92,000	60%
Administration Expenses	40,000	35%

The Bhutanese production will be sold by manufacturer's representatives who will receive a commission of 8% of the sale price. No portion of the Indian office expenses is to be allocated to the Bhutanese subsidiary. You are required to

(i) Compute the sale price per bottle to enable the management to realize an estimated 10% profit on sale proceeds in Bhutan.

(ii) Calculate the break-even point in rupee sales as also in number of bottles for the Bhutanese subsidiary on the assumption that the sale price is ₹ 14 per bottle.

Question 4

The product mix of a Gama Ltd. is as under:

	Products	
	M	N
Units	54,000	18,000
Selling price	₹ 7.50	₹15.00
Variable cost	₹ 6.00	₹ 4.50

Find the break-even points in units, if the company discontinues product 'M' and replace with product 'O'. The quantity of product 'O' is 9,000 units and its selling price and variable costs respectively are ₹ 18 and ₹ 9. Fixed Cost is ₹ 15,000.

Question 5

You are given the following data:

	Sales	Profit
Year 1	₹ 1,20,000	₹ 8,000
Year 2	₹ 1,40,000	₹ 13,000

Find out –

(i) P/V ratio,

(ii) B.E. Point,

(iii) Profit when sales are ₹ 1,80,000,

(iv) Sales required earn a profit of ₹ 12,000,

(v) Margin of safety.

Question 6

X Ltd. supplies spare parts to an air craft company Y Ltd. The production capacity of X Ltd. facilitates production of any one spare part for a particular period of time. The following are the cost and other information for the production of the two different spare parts A and B:

Per unit	Part A	Part B
Alloy usage	1.6 kgs.	1.6 kgs.
Machine Time: Machine A	0.6 hrs.	0.25 hrs.
Machine Time: Machine B	0.5 hrs.	0.55 hrs.
Target Price (₹)	145	115

Total hours available — Machine A : 4,000 hours; Machine B : 4,500 hours

Alloy available is 13,000 kgs. @ ₹ 12.50 per kg.

Variable overheads per machine hour — Machine A: ₹ 80; Machine B: ₹ 100

Required:

(i) Identify the spare part which will optimize contribution at the offered price.

(ii) If Y Ltd. reduces target price by 10% and offers ₹ 60 per hour of unutilized machine hour, what will be the total contribution from the spare part identified above?

Question 7

Two manufacturing companies A and B are planning to merge. The details are as follows:

	A	B
Capacity utilisation (%)	90	60
Sales (₹)	63,00,000	48,00,000
Variable Cost (₹)	39,60,000	22,50,000
Fixed Cost (₹)	13,00,000	15,00,000

Assuming that the proposal is implemented, calculate :

(i) Break-Even sales of the merged plant and the capacity utilization at that stage.

(ii) Profitability of the merged plant at 80% capacity utilization.

(iii) Sales Turnover of the merged plant to earn a profit of ₹ 60,00,000.

(iv) When the merged plant is working at a capacity to earn a profit of ₹ 60,00,000, what percentage of increase in selling price is required to sustain an increase of 5% in fixed overheads.

Question 8

PQR Ltd. manufactures medals for winners of athletic events and other contests. Its manufacturing plant has the capacity to produce 10,000 medals each month. The company has current production and sales level of 7,500 medals per month. The current domestic market price of the medal is ₹ 150.

The cost data for the month of August 2021 is as under:

	(₹)
Variable costs:	
- Direct materials	2,62,500
- Direct labour cost	3,00,000
- Overhead	75,000
Fixed manufacturing costs	2,75,000
Fixed marketing costs	1,75,000
	10,87,500

PQR Ltd. has received a special one-time only order for 2,500 medals at ₹ 120 per medal.

Required:

(i) Should PQR Ltd. accept the special order? Why? EXPLAIN briefly.

(ii) Suppose the plant capacity was 9,000 medals instead of 10,000 medals each month. The special order must be taken either in full or rejected totally. ANALYSE whether PQR Ltd. should accept the special order or not.

Question 9

NN Ltd. manufactures automobiles accessories and parts. The following are the total cost of processing 2,00,000 units:

Direct materials cost	₹ 375 per unit
Direct labour cost	₹ 80 per unit
Variable factory overhead	₹ 16 per unit
Fixed factory overhead	₹ 500 lakhs

The purchase price of the component is ₹ 485. The fixed overhead would continue to be incurred even when the component is bought from outside.

Required:

(a) Should the part be made or bought from outside considering that the present facility when released following a buying decision would remain idle?

(b) In case the released capacity can be rented out to another manufacturer for ₹ 32,00,000 having good demand. What should be the decision?

Question 10

Mr. X has ₹ 2,00,000 investments in his business firm. He wants a 15 per cent return on his money. From an analysis of recent cost figures, he finds that his variable cost of operating is 60 per cent of sales, his fixed costs are ₹ 80,000 per year. Show Computations to anwer the following questions:

(i) What sales volume must be obtained to break even?

(ii) What sales volume must be obtained to get 15 per cent return on investment?

(iii) Mr. X estimates that even if he closed the doors of his business, he would incur ₹25,000 as expenses per year. At what sales would he be better off by locking his business up?

SERVICE COSTING OR OPERATING COSTING

THEORY SECTION

It is followed by those companies which are providing services for e.g., Transport companies, School & Colleges, Hospitals, Theaters, Hotels etc.

We have to calculate Total cost of providing service.

Type of Industry	Unit of Cost
1. Goods Transport Company	→ Tonne Kms. (per tonne per km.)
2. Passenger Transport Co	→ Passenger kms. (per passenger per km.)
3. Hotels	→ Room Days (per room per day)
4. Hospitals	→ Per Bed per day or Per Patient per day

PRACTICAL QUESTIONS

Question 1

Mr. X owns a bus which runs according to the following schedule:

(i)	Delhi to Chandigarh and back, the same day.	
	Distance covered:	250 km. one way.
	Number of days run each month :	8
	Seating capacity occupied	90%.
(ii)	Delhi to Agra and back, the same day.	
	Distance covered:	210 km. one way
	Number of days run each month :	10
	Seating capacity occupied	85%
(iii)	Delhi to Jaipur and back, the same day.	
	Distance covered:	270 km. one way
	Number of days run each month :	6
	Seating capacity occupied	100%
(iv)	Following are the other details:	
	Cost of the bus	₹ 12,00,000
	Salary of the Driver	₹ 24,000 p.m.
	Salary of the Conductor	₹ 21,000 p.m.
	Salary of the part-time Accountant	₹ 5,000 p.m.
	Insurance of the bus	₹ 4,800 p.a.
	Diesel consumption 4 km. per litre at	₹ 56 per litre
	Road tax	₹ 15,915 p.a.
	Lubricant oil	₹ 10 per 100 km.
	Permit fee	₹ 315 p.m.
	Repairs and maintenance	₹ 1,000 p.m.
	Depreciation of the bus	@ 20% p.a.
	Seating capacity of the bus	50 persons.

Passenger tax is 20% of the total takings. Calculate the bus fare to be charged from each passenger to earn a profit of 30% on total takings. The fares are to be indicated per passenger for the journeys:

(i) Delhi to Chandigarh (ii) Delhi to Agra and (iii) Delhi to Jaipur.

Question 2

SMC is a public school having five buses each plying in different directions for the transport of its school students. In view of a large number of students availing of the bus service the buses work two shifts daily both in the morning and in the afternoon. The buses are garaged in the school. The work-load of the students has been so arranged that in the morning the first trip picks up senior students and the second trip plying an hour later picks up the junior students. Similarly, in the afternoon the first trip takes the junior students and an hour later the second trip takes the senior students home.

The distance travelled by each bus one way is 8 km. The school works 25 days in a month and remains closed for vacation in May, June and December. Bus fee, however, is payable by the students for all 12 months in a year.

The details of expenses for a year are as under:

Driver's salary	₹ 4,500 per month per driver
Cleaner's salary	₹ 3,500 per month
(Salary payable for all 12 months)	
(one cleaner employed for all the five buses)	
Licence fee, taxes, etc.	₹ 8,600 per bus per annum
Insurance	₹ 10,000 per bus per annum
Repairs & maintenance	₹ 35,000 per bus per annum
Purchase price of the bus	₹ 15,00,000 each
Life of each bus 12 years	
Scrap value of bus at the end of life	₹ 3,00,000

Diesel cost ₹ 45.00 per litre

Each bus gives an average mileage of 4 km. per litre of diesel.

Seating capacity of each bus is 50 students.

The seating capacity is fully occupied during the whole year.

Students picked up and dropped within a range up to 4 km. of distance from the school are charged half fare and fifty per cent of the students travelling in each trip are in this category. Ignore interest. Since the charges are to be based on average cost you are required to:

(i) Prepare a statement showing the expenses of operating a single bus and the fleet of five buses for a year.

(ii) Work out the average cost per student per month in respect of –

(A) students coming from a distance of upto 4 km. from the school and

(B) students coming from a distance beyond 4 km. from the school.

Question 3

Global Transport Ltd. charges ₹ 90 per ton for its 6-ton truck lorry load from city 'A' to city 'B'. The charges for the return journey are ₹ 84 per ton. No concession or reduction in these rates is made for any delivery of goods at intermediate station 'C'.

In January 20X8, the truck made 12 outward journeys for city 'B' with full load out of which 2 tons were unloaded twice in the way at city 'C'. The truck carried a load of 8 tons in its return journey for 5 times but was once caught by police and ₹ 1,200 was paid as fine. For the remaining trips the truck carried full load out of which all the goods on load were unloaded once at city 'C'. The distance from city 'A' to city 'C' and city 'B' are 140 km. and 300 km. respectively.

Annual fixed costs and maintenance charges are ₹ 60,000 and ₹12,000 respectively.

Running charges spent during January 20X8 are ₹ 2,944.

You are required to find out the cost per absolute ton-kilometre and the profit for January, 20X8.

Question 4

A lodging home is being run in a small hill station with 100 single rooms. The home offers concessional rates during six off- season months in a year. During this period, half of the full room rent is charged. The management's profit margin is targeted at 20% of the room rent. The following are the cost estimates and other details for the year ending on 31st March 20X7. [Assume a month to be of 30 days].

(i) Occupancy during the season is 80% while in the off- season it is 40% only.

(ii) Total investment in the home is ₹ 200 lakhs of which 80% relate to buildings and balance for furniture and equipment.

(iii) Expenses:

- Staff salary [Excluding room attendants] : ₹ 5,50, 000
- Repairs to building : ₹ 2,61,000
- Laundry charges : ₹80, 000
- Interior : ₹ 1,75,000
- Miscellaneous expenses : ₹ 1,90,800

(iv) Annual depreciation is to be provided for buildings @ 5% and on furniture and equipment @ 15% on straight-line basis.

(v) Room attendants are paid ₹ 10 per room day on the basis of occupancy of the rooms in a month.

(vi) Monthly lighting charges are ₹ 120 per room, except in four months in winter when it is ₹ 30 per room. You are required to work out the room rent chargeable per day both during the season and the off-season months on the basis of the foregoing information.

Question 5

GTC has a lorry of 6-ton carrying capacity. It operates lorry service from city A to city B. It charges ₹ 2,400 per ton from city 'A' to city 'B' and ₹ 2,200 per ton for the return journey from city 'B' to city 'A'. Goods are also delivered to an intermediate city 'C' but no concession or reduction in rates is given. Distance between the city 'A' to 'B' is 300 km and distance from city 'A' to 'C' is 140 km.

In January 2020, the truck made 12 outward journeys for city 'B'. The details of journeys are as follows:

Outward journey	No. of journeys	Load (in ton)
'A' to 'B'	10	6
'A' to 'C'	2	6
'C' to 'B'	2	4
Return journey	**No. of journeys**	**Load (in ton)**
'B' to 'A'	5	8
'B' to 'A'	6	6
'B' to 'C'	1	6
'C' to 'A'	1	0

Annual fixed costs and maintenance charges are ₹ 6,00,000 and ₹ 1,20,000 respectively. Running charges spent during January 2020 are ₹ 2,94,400 (includes ₹ 12,400 paid as penalty for overloading).

You are required to:

CALCULATE the cost as per (a) Commercial ton-kilometre. (b) Absolute ton- kilometre

Question 6

The data given relates to "Vasanth Talkies" mini theatre, for the year ending 31st March, 2018.

Salaries

		₹		₹
1	Manager	800 p.m.	Carbon	7,235
10	Gate-keepers	200 p.m. each	Miscellaneous Expenditure	5,425
2	Operators	400 p.m. each	Advertisement	34,710
4	Clerks	250 p.m. each	Administrative Expenditure	18,000
	Electricity & Oil	11,655	Hire of print	1,40,700

The premises are valued at ₹ 6,00,000 and the estimated life is 15 years. Projector and other equipments cost ₹ 3,20,000 on which 10% depreciation is to be charged.

Daily three shows are run throughout the year. The total capacity is 625 seats which is divided into three classes as follows

Janata circle	250 seats
Sanman circle	250 seats
Lord's circle	125 seats

Ascertain rate per man-show assuming that:

(a) 20% of the seats remain vacant, and

(b) Weightage to be given to the three classes in the ratio of 1:2:3.

Determine the rates for each class if the management expects 30% return on gross proceeds. Ignore entertainment taxes

MATERIAL COST CONTROL, STOCK VALUATION AND STOCK CONTROL

THEORY SECTION

A. How To Purchase [Raw Materials]

Step	Document	Copies	From	To	Copies With
1.	Purchase Requisition Form	3	Stores	Purchase	Stores Purchase Account
2.	Letters		Purchase	Suppliers	
3.	Quotations		Suppliers	Purchase	
4.	Purchase Order	5	Purchase	Suppliers	Purchase Suppliers Stores Receiving Accounts
5	Delivery Challan	2	Suppliers	Receiving Dept.	Suppliers Receiving
6.	Goods Received Note OR Receiving Report OR Material Inward Note	5	Receiving Dept.	Suppliers	Receiving Suppliers Purchase Stores Accounts
7.	Material Outward Note [For Purchase Return]	5	Stores	Suppliers	Stores Suppliers [2] Accounts Outward register
8.	Raw Materials Requisition Form	2	Production	Stores	Production Stores

9	Raw Materials Issue Form	3	Stores	Production	Stores Production Accounts
10	R.M. Returns Forms [Memo]	3	Production	Stores	Production Stores Accounts
11	Raw Materials Transfer Form	2	Production	Another Prod. Dept	Production Another Prod.depts.

B. HOW MUCH TO BUY / MANUFACTURE AT A TIME:

(i) Total Ca or Acquisition cost or ordering cost :

The Acquisition cost is that cost which we specifically incur, every time the order for buying the raw material is placed. The examples are paper & other stationery cost that we incur for preparing the purchase requisition, purchase order etc., the postage cost incurred for inviting the quotations, telephone expenses to be incurred, fuel or carriage inward and so on.

The acquisition cost, as such, depends on the number of times that we buy but the number of times that we buy itself would depend on how much we buy every time. The more we buy at a time, the less the number of times we buy & therefore the less would be our Ca. Thus, to minimise Ca, we should buy less no. of times.

It should be noted that expenses which are unaffected by the number of times we buy are not acquisition costs at all (e.g. Salary of purchase department staff, depreciation of vehicles etc.)

(ii) Total Ci or carrying cost:

This cost depends on the average stock that we carry in our inventory. The average stock is half of how much we buy every time.

Interest cost, real or notional, that we incur on investments in our inventory or the insurance premium that we pay to insure the stock against certain risk are examples of carrying cost items.

The more we buy at a time, the more would be our investment and accordingly, the more would be our carrying cost. To minimise Ci, we must buy less at a time so that the investment & consequently, the carrying cost would get reduced. It should be noted that expenses which are unaffected by quantity of stock that we keep are not Ci items (e.g. salary of store keeper, depreciation or rent warehouse etc.). Also unless instructed otherwise any change in purchase price or rate of interest would change Ci.

(iii) Ca v/s Ci :

These two cost items are equally strong but conflicting cost items. If one tries to minimise one of them the other would automatically increase. For example, to minimise Ca, we should buy less number of times which means we should buy more at a time. But if we buy more at a time, the Ci would increase.

The EOQ does one very important job of striking a good balance between the two by making the two equal.

B. WHEN TO BUY:

(1) Re-order level (ROL):

This is the stock level which, when reached, signifies that the action should be taken to procure fresh quantity of raw material. The ROL has to be such that the stock out is eliminated completely.

If the stock-out is not to occur, then, we must find out the maximum-possible requirements of raw material during the maximum possible lead time that lapses before we get fresh quantity of Raw Material.

Therefore ROL= Maximum consumption in maximum lead time + safety stock / buffer stock / base stock (if given).

(2) Maximum (possible) stock:

After ROL is reached & before we get the fresh quantity, at least some consumption would take place out of ROL quantity. If we want maximum possible stock, the consumption should be minimum possible. Just after that consumption is over, we would get fresh quantity of Raw Material which would be Re-order quantity (which could be EOQ or other than EOQ).

Therefore Maximum possible stock = ROL ¬– Minimum consumption in minimum lead time + Re-order quantity.

(3) Minimum (desirable) stock:

The minimum desirable level is the usual stock. Once our stock level reaches below minimum level, it signifies that the conditions are unusual & unless some urgent steps are taken, the stock-out may occur. However as long as the conditions are normal we have nothing to worry about.

The maximum lead time & the maximum consumption occur only rarely & so is the case with minimum consumption & minimum lead time. These are extremes & do not occur regularly. What happens usually is the average lead time &

average consumption. In other words as long as reduction from ROL is equal to average consumption in average lead time, we have nothing to worry about as that is something very normal and it happens in every inventory cycle. It is only when, the stock goes below that level, that must make us worry.

Therefore, the minimum stock = ROL – Average consumption in average lead time.

(4) Average stock = $\frac{\text{(Maximum Stock + Minimum Stock}}{2}$

(5) Danger Level:

1. Level at which emergency purchase action is made to replenish stock.
2. Level at which stocks are issued only on "most needed" basis.

   Average consumption x Emergency lead time

PRACTICAL QUESTIONS

Question 1

G. Ltd. produces a product which has a monthly demand of 4,000 units. The product requires a component X which is purchased at ₹ 20. For every finished product, one unit of component is required. The ordering cost is ₹ 120 per order and the holding cost is 10% p.a.

You are required to calculate:

(i) Economic order quantity.

(ii) If the minimum lot size to be supplied is 4,000 units, what is the extra cost, the company has to incur?

(iii) What is the minimum carrying cost, the company has to incur?

Question 2

X. Ltd. for some time had been buying the inventory at random till recently when it switched over to EOQ system of buying.

The firm's annual requirement is 12,000 units. The cost of carrying inventory is ₹ 15 per unit per annum. The ordering cost is ₹ 400 per order.

One supplier has approached the purchase manager with a proposal that if the company buys all 12,000 units at a time, then he would give 10% discount in the purchase price which is ₹ 100 per unit.

Decide whether the proposal should be accepted or not.

Question 3

JP Limited, manufacturer of a special product, follows the policy of EOQ (economic order quantity) for one of its components. The components details are as follows:

	₹
Purchase price per components	200
Cost of an order	100
Annual cost of carrying one unit in inventory	10% of purchase price

Total cost of inventory carrying and ordering per annum 4,000

The company has been offered a discount of 2% on the price of the component, provided the lot size is 2,000 components at a time.

You are required to:

(i) Compute the EOQ

(ii) Advise whether the quantity discount offer can be accepted. (Assume that the inventory carrying cost does not vary according to discount policy)

(iii) Would your advise differ if the company is offered 5% discount on a single order.

Question 4

Two components, A and B are used as follows:

Normal usage	50 per week each
Maximum usage	75 per week each
Minimum usage	25 per week each
Re-order quantity	A: 300; B: 500
Re-order period	A: 4 to 6 weeks
	B: 2 to 4 weeks

Calculate for each component (a) Re-ordering level, (b) Minimum level, (c) Maximum level, (d) Average stock level.

Question 5

From the details given below, calculate:

(i) Re-ordering level (ii) Maximum level

(iii) Minimum level (iv) Danger level.

Re-ordering quantity is to be calculated on the basis of following information:

Cost of placing a purchase order is ₹ 20

Number of units to be purchased during the year is 5,000

Purchase price per unit inclusive of transportation cost is ₹ 50

Annual cost of storage per units is ₹ 5.

Details of lead time:	Average- 10 days, Maximum- 15 days, Minimum-5 days.
	For emergency purchases - 4 days.
Rate of consumption:	Average: 15 units per day, Maximum: 20 units per day

Question 6

Aditya Ltd. produces a product 'Exe' using a raw material Dee. To produce one unit of Exe, 2 kg of Dee is required. As per the sales forecast conducted by the company, it will able to sale 10,000 units of Exe in the coming year. The following is the information regarding the raw material Dee:

(i) The Re-order quantity is 200 kg. less than the Economic Order Quantity (EOQ).

(ii) Maximum consumption per day is 20 kg. more than the average consumption per day.

(iii) There is an opening stock of 1,000 kg.

(iv) Time required to get the raw materials from the suppliers is 4 to 8 days.

(v) The purchase price is ₹ 125 per kg.

There is an opening stock of 900 units of the finished product Exe.

The rate of interest charged by bank on Cash Credit facility is 13.76%.

To place an order company has to incur ₹ 720 on paper and documentation work.

From the above information find out the followings in relation to raw material Dee:

(a) Re-order Quantity

(b) Maximum Stock level

(c) Minimum Stock level

(d) Calculate the impact on the profitability of the company by not ordering the EOQ.

[Take 364 days for a year].

EMPLOYEE COST AND DIRECT EXPENSE

THEORY SECTION

1. Calculation of Labour Cost

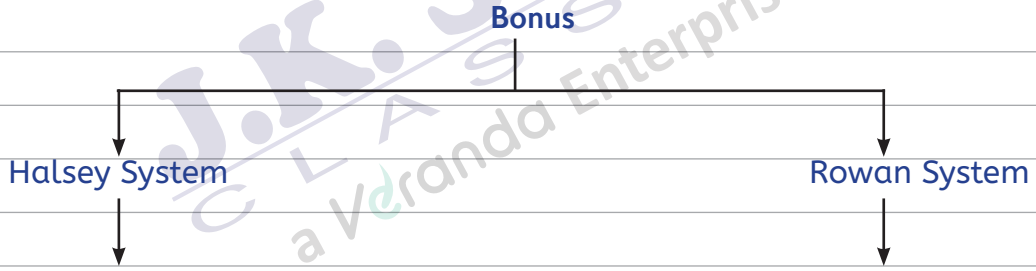
(I) Time Rate System

Wages depends on Actual hours worked by worker.

→ Basic wages = Time taken (Actual hours worked) x Rate per hour

→ Bonus is to be paid only if workers are efficient.

Efficiency means either time remaining constant, worker are producing more units or output remaining constant, workers takes less time.



Bonus = 50% of time saves x Rate per hour Bonus = $\frac{\text{Time saved}}{\text{Time Allowed}}$ x Basic wages

Time Allowed: It represents standard time allowed by the company to produced one unit and it includes Normal Idle Time.

Time Saved:

Time Allowed for Actual Production	xx
Time taken for Actual Production	xx
	xx

Total Wages = Basic Wages + Bonus

Effective Rate per Hour or Hourly Earning = $\frac{\text{Total Wages}}{\text{TIme taken}}$

(II) Piece Rate System

Single / Straight Piece Rate System

Wages = Units Produced x Rate per Unit

2. Labour Turnover

It represent change in labour force of a company over a period of time.

Effect of Labour Turnover

Due to Labour Turnover, total Cost will increase because we have to incurr many expenses like settlement cost, recruitment cost, training cost etc.

Efficiency of new workers will be less than old workers in the beginning and due to that production will decrease.

Labour Turnover Rate

1. Separation Method

$$\text{L. T. R.} = \frac{\text{No. of workers separated}}{\text{Average No. of workers}} \times 100$$

2. Replacement Method

$$\text{L. T. R.} = \frac{\text{No. of workers replaced}}{\text{Average No. of workers}} \times 100$$

3. Flux Method

$$\text{L. T. R.} = \frac{\text{No. of workers separated x No. of workers replaced}}{\text{Average No. of workers}} \times 100$$

Labour Turnover due to new recruitment

$$\text{L. T. R.} = \frac{\text{No. of workers joining in a period (excluding replacement)}}{\text{Average No. of workers}} \times 100$$

The total no. of workers joining, including replacements are called accessions.

$$\text{L. T. R.} = \frac{\text{No. of accessions in a period}}{\text{Average No. of workers}} \times 100$$

When no. of accessions are considered, the Labour turnover rate by flux method can be calculated as under.

$$\text{L. T. R.} = \frac{\text{No. of Separations + No. of Accession}}{\text{Average No. of workers}} \times 100$$

3. Cost to Company (C to C)

It includes all expenses incurred by employer on employee for e.g. Basic Wages Dearness allowance, Bonus, employer's contribution to Provident fund etc.

$$\text{Labour hour rate} = \frac{\text{C to C}}{\text{Expected labour hrs. (excluding NIT)}} \times 100$$

All workers are issued job cards by the company. In this job card they have to record details about actual hours worked on different jobs.

Labour Cost of Job = Labour hours as per job cards x Labour hour rate

Any difference between expected labour hours and total hours as per job card is due to abnormal idle time. Labour cost of abnormal idle time is to be debited to costing P & L A/c.

4. Over Time and its Treatment

Overtime premium: Overtime is the amount of wages paid for working beyond normal working hours as specified by Factories Act or by a mutual agreement between the workers union and the management. According to Factories Act of 1948, a worker is entitled for overtime at double the rate of his wages (including allowances) if he works beyond 9 hours in a day or 48 hours in a week even where the Act is not applicable, the practice is to pay for overtime work at higher rates usually in accordance with a standing agreement between the employer and the workers. Hence, payment of overtime consists of two elements, the normal wages i.e., the usual amount, and the extra payment i.e., the premium. This amount of extra payment paid to a worker under overtime is known as overtime premium.

The overtime payment affects the productivity and cost in many ways as follows:

(i) During overtime period the efficiency of a worker is low. This causes reduced productivity, thus during this period the productivity is lesser than the normal one.

(ii) In their anxiety to earn more, the workers may not concentrate on work during normal time and thus the output during normal hours may also fall.

(iii) The practice of resorting to overtime adversely affects workers' health which may lead to increase in accident rate and consequently a decrease in productivity.

(iv) Due to overtime, it is not possible to carry out necessary maintenance of plants and machinery. Such a situation results occasionally in a major breakdown and hence accounts for the stoppage of production cycle.

(v) Reduced output and increased premium are responsible for bringing an increase in cost of production.

Overtime premium is a part of total wages of overtime period. In cost accounting the treatment of overtime premium will be as follows:

(i) If the overtime is resorted to at the desire of the customer, then the entire amount of overtime including overtime premium should be charged to the job directly.

(ii) If it is due to a general pressure of work to increase the output, the premium as well as overtime wages may be charged to general overheads.

(iii) If it is due to the negligence or delay of workers of a particular department, it may be charged to the concerned department.

(iv) If it is due to circumstances beyond control, it may be charged to Costing Profit & Loss Account.

As regards the control of overtimes is concerned, it is difficult to eliminate it completely. But it is not difficult to control it and to keep it to the barest minimum. The procedure for control of overtime work involves the following steps :

1. Entire overtime work should be duly authorized after investigating the reasons for it.
2. Overtime cost should be shown against the concerned department. Such a practice should enable proper investigation and planning of production in future.
3. If overtime is a regular feature, the necessity for recruiting more men and adding a shift should be considered.
4. If overtime is due to lack of plant and machinery or other resources, steps may be taken to install more machines, or to resort to sub-contracting

PRACTICAL QUESTIONS

Question 1

Two workmen, 'A' and 'B', produce the same product using the same material. Their normal wage rate is also the same. 'A' is paid bonus according to the Rowan system, while 'B' is paid bonus according to the Halsey system. The time allowed to make the product is 50 hours. 'A' takes 30 hours while 'B' takes 40 hours to complete the product. The factory overhead rate is ₹ 5 per man-hour actually worked. The factory cost for the product for 'A' is ₹ 3,490 and for 'B' it is ₹ 3,600.

Required:

(i) Compute the normal rate of wages;

(ii) Compute the cost of materials cost;

(iii) Prepare a statement comparing the factory cost of the products as made by the two workmen.

Question 2

Jigyasa Boutiques LLP. (JBL) takes contract on job works basis. It works for various fashion houses and retail stores. It has employed 26 workers and pays them on time rate basis. On an average an employee is allowed 2 hours for boutique work on a piece of garment. In the month of March two workers Margaret and Jennifer were given 30 pieces and 42 pieces of garments respectively for boutique work. The following are the details of their work:

	Margaret	Jennifer
Work assigned	30 pcs	42 pcs.
Time taken	28 hours	40 hours

Workers are paid bonus as per Halsey System. The existing rate of wages is ₹ 50 per hour. As per the new wages agreement the workers will be paid ₹ 55 per hour w.e.f. 1st April. At the end of the month March, the accountant of the company has calculated wages to these two workers taking ₹ 55 per hour.

(i) From the above information calculate the amount of loss that the company has incurred due to incorrect rate selection.

(ii) What would be the loss incurred by the JBL due to incorrect rate selection if it had followed Rowan scheme of bonus payment.

(iii) Amount that could have been saved if Rowan scheme of bonus payment was followed.

(iv) Do you think Rowan scheme of bonus payment is suitable for JBL?

Question 3

(a) Bonus paid under the Halsey Plan with bonus at 50% for the time saved equals the bonus paid under the Rowan System. When will this statement hold good? (Your answer should contain the proof).

(b) The time allowed for a job is 8 hours. The hourly rate is ₹ 8. Prepare a statement showing:

i. The bonus earned

ii. The total earnings of employee and

iii. Hourly earnings.

Under the Halsey System with 50% bonus for time saved and Rowan System for each hour saved progressively.

Question 4

Mr. A. is working by employing 10 skilled workers. He is considering the introduction of some incentive scheme - either Halsey Scheme (with 50% bonus) or Rowan Scheme of wage payment for increasing the Employee productivity to cope with the increased demand for the product by 25%. He feels that if the proposed incentive scheme could bring about an average 20% increase over the present earnings of the workers, it could act as sufficient incentive for them to produce more and he has accordingly given this assurance to the workers. As a result of the assurance, the increase in productivity has been observed as revealed by the following figures for the current month:

Hourly rate of wages (guaranteed)	₹ 40
Average time for producing 1 piece by one worker at the previous performance (This may be taken as time allowed)	2 hours
No. of working days in the month	25
No. of working hours per day for each worker	8
Actual production during the month	1,250 units

Required:

(i) Calculate effective rate of earnings per hour under Halsey Scheme and Rowan Scheme.

(ii) Calculate the savings to Mr. A in terms of direct labour cost per piece under the schemes.

(iii) Advise Mr. A as regards to which scheme is to be selected.

Question 5

From the following information, calculate Labour turnover rate and Labour flux rate:

No. of workers as on 01.01.2013 = 7,600

No. of workers as on 31.12.2013 = 8,400

During the year, 80 workers left while 320 workers were discharged 1,500 workers were recruited during the year of these, 300 workers were recruited because of exits and the rest were recruited in accordance with expansion plans.

Question 6

Corrs Consultancy Ltd. is engaged in BPO industry. One of its trainee executives in the Personnel department has calculated labour turnover rate 24.92% for the last year using Flux method.

Following is the some data provided by the Personnel department for the last year:

Employees	At the beginning	Joined	Left	At the end
Data Processors	540	1,080	60	1,560
Payroll Processors	?	20	60	40
Supervisors	?	60	--	?
Voice Agents	?	20	20	?
Assistant Managers	?	20	--	30
Senior Voice Agents	4	--	--	12
Senior Data Processors	8	--	--	34
Team Leaders	?	--	--	?
Employees transferred from the Subsidiary Company				
Senior Voice Agents	--	8	--	--
Senior Data Processors	--	26	--	--
Employees transferred to the Subsidiary Company				
Team Leaders	--	--	60	--
Assistant Managers	--	--	10	--

At the beginning of the year there were total 772 employees on the payroll of the company.

The opening strength of the Supervisors, Voice Agents and Assistant Managers were in the ratio of 3 : 3 : 2.

The company has decided to abandon the post of Team Leaders and consequently all the Team Leaders were transferred to the subsidiary company.

The company and its subsidiary are maintaining separate set of books of account and separate Personnel Department.

You are required to calculate:

(i) Labour Turnover rate using Replacement method and Separation method.

(ii) Verify the Labour turnover rate calculated under Flux method by the trainee executive of the Corrs Consultancy Ltd.

Question 7

The management of B.R Ltd. is worried about their increasing employee turnover in the factory and before analyzing the causes and taking remedial steps, it wants to have an idea of the profit foregone as a result of employee turnover in the last year.

Last year sales amounted to ₹ 83,03,300 and P/V ratio was 20 per cent. The total number of actual hours worked by the direct employee force was 4.45 lakhs. As a result of the delays by the Personnel Department in filling vacancies due to employee turnover, 1,00,000 potentially productive hours were lost. The actual direct employee hours included 30,000 hours attributable to training new recruits, out of which half of the hours were unproductive.

The costs incurred consequent on employee turnover revealed, on analysis, the following:

Settlement cost due to leaving	₹ 43,820
Recruitment costs	₹ 26,740
Selection costs	₹ 12,750
Training costs	₹ 30,490

Assuming that the potential production lost as a consequence of employee turnover could have been sold at prevailing prices, find the profit foregone last year on account of employee turnover.

THEORY QUESTIONS

Cost sheet

Question 1

Distinguish between:

(i) Cost Unit and Cost Centre

(ii) Cost Centre and Profit Centre

Answer

(i) Distinction between Cost Unit and Cost Centre

The term Cost Unit is defined as a unit of quantity of product, service or time (or a combination of these) in relation to which costs may be ascertained or expressed. It can be for a job, batch, or product group.

The term Cost Centre is defined as a location, person or an item of equipment or a group of these for which costs may be ascertained and used for the purposes of Cost Control. Cost Centres can be personal Cost Centres, impersonal Cost Centres, operation cost and process Cost Centres.

Thus each sub-unit of an organisation is known as a Cost Centre, if cost can be ascertained for it. In order to recover the cost incurred by a Cost Centre, it is necessary to express it as the cost of output. The unit of output in relation to which cost incurred by a Cost Centre is expressed is called a Cost Unit.

(ii) Cost Centre and Profit Centre

A Cost Centre is the smallest segment of activity or the area of responsibility for which costs are accumulated. A Profit Centre is that segment of activity of a business which is responsible for both revenue and expenses and discloses the profit of a particular segment of activity.

Important points of distinction between Cost Centre and Profit Centre are as below:

(a) Cost Centres are created for accounting convenience of costs and their control. Whereas a profit centre is created because of decentralisation of operations.

(b) A Cost Centre does not have target costs but efforts are made to minimise

costs, but each profit centre has a profit target and enjoys authority to adopt such policies as are necessary to achieve its targets.

Question 2

Distinguish between the following?

Controllable costs and uncontrollable costs.

Answer

Controllable costs and uncontrollable costs:

Costs which can be influenced by the action of a specified person in an organisation are known as controllable costs. Costs which remains unaffected by the action of such person are termed as uncontrollable. In a business organisation heads of each responsibility centre are responsible to control costs. Costs which they are able to control are known as controllable and includes material, labour and direct expenses. Costs which they fail to control includes fixed costs and all allocated costs.

It may be noted that controllable and uncontrollable cost concepts are related to the authority of a person in the organisation. An expenditure which may be uncontrollable by one person may be controllable by another. Moreover, in the long run all costs might be controllable.

Question 3

(a) Describe briefly the role of the cost accountant in a manufacturing organisation.

(b) Distinguish between:

(i) Variable cost and direct cost

(ii) Estimated cost and standard cost.

Answer

(a) Cost accountant in a manufacturing organisation plays several important roles. He establishes a Cost Accounting department in his concern. He ascertains the equirement of cost information which may be useful to organisational mangers at different levels of the hierarchy. He develops a manual, which specifies the functions to be performed by the Cost Accounting department. The manual also contains the format of various forms which would be utilised by the concern for procuring and providing information to the concerned officers. It also specifies the frequency at which the cost information would be supplied to a concerned executive.

Usually, the functions performed by a Cost Accounting department includes cost

ascertainment, cost comparison, cost reduction, cost control and cost reporting.

Cost ascertainment, requires the classification of costs into direct and indirect. Further it requires classification of indirect costs (known as overheads) into three classes viz, factory overheads; administration overheads and selling and distribution overhead. Cost accountant suggests the basis which may be used by his subordinates for carrying out the necessary classifications as suggested above.

Cost comparison is the task carried out by Cost Accountant for controlling the cost of the products manufactured by the concern. Cost Accountant of the concern establishes standards for all the elements of cost and thus a standard cost of the finished product. The standard cost so determined may be compared with the actual cost to determine the variances. Cost Accountant ascertains the reasons for the occurrence of these variances for taking suitable action.

Cost analysis may also be made by Cost Accountant for taking decisions like make or by and for reviewing the current performance.

Cost Accountant also suggests suitable techniques for the purpose of cost reduction / cost control, after carrying out a cost benefit analysis.

Cost Accountant also plays a key role in the preparation of Cost reports. These reports help the executives of a business concern in reviewing their own performance and in identifying the weak areas, where enough control measure may be taken in future.

In brief, one may say that there is hardly any activity in a manufacturing organisation with which a Cost Accountant is not directly associated in some form or the other.

(b) (i) **Variable and direct cost:** A variable cost is a cost that changes in total in direct proportion to changes in the related total activity or volume. Cost of material is an example of variable cost.

Direct cost is a cost which can be identified either with a cost centre or with a cost unit. An example of direct cost is the allocation of direct materials to a department and then to the various jobs. All variable costs are direct-but each direct cost may not be variable.

(ii) **Estimated cost and standard cost:** Kohler defines estimated costs as 'the expected cost of manufacture or acquisition, often in terms of a unit of product computed on the basis of information available in advance of actual production or purchase' Estimated cost are prospective costs since they refer to prediction of costs.

Standard Cost means a pre-determined cost. It attempts to show what the

cost should be for clearly defined conditions and circumstances. Standard costs represent' planned cost of a product. They are expected to be achieved under a particular production process under normal conditions.

Although pre-determination is the essence of both standard costs and estimated costs, but they differ from each other in the following respects:

(i) Difference in computation
(ii) Difference in emphasis
(iii) Difference in use
(iv) Difference in records
(v) Applicability

Question 4

Enumerate the main objectives of introduction of a Cost Accounting System in a manufacturing organisation. **(Nov., 2002, 3 Marks)**

Answer

The main objectives of introduction of a Cost Accounting System in a manufacturing organization are as follows:

(i) Ascertainment of cost
(ii) Determination of selling price
(iii) Cost control and cost reduction
(iv) Ascertainment of profit of each activity
(v) Assisting in managerial decision making

Question 5

Write short notes on the following?

(i) Conversion cost
(ii) Sunk cost
(iii) Opportunity cost

Answer

(i) **Conversion cost:** It is the cost incurred to convert raw materials into finished goods. It is the sum of direct wages, direct expenses and manufacturing overheads.

(ii) **Sunk cost:** Historical costs or the costs incurred in the past are known as sunk cost. They play no role in the current decision making process and are termed as irrelevant costs. For example, in the case of a decision relating to the replacement of a machine, the written down value of the existing machine is a sunk cost, and therefore, not considered.

(iii) **Opportunity cost:** It refers to the value of sacrifice made or benefit of opportunity foregone in accepting an alternative course of action. For example, a firm financing its expansion plan by withdrawing money from its bank deposits. In such a case the loss of interest on the bank deposit is the opportunity cost for carrying out the expansion plan.

Question 6

Explain:

(i) Sunk Costs

(ii) Pre-production Costs

(iii) Research and Development Costs

(iv) Training Costs **(Nov., 2000, 2 x 4 = 8 Marks)**

Answer

(i) **Sunk Costs:** These are historical costs which are incurred in the past. These costs were incurred for a decision made in the past and cannot be changed by any decision that will be made in future. In other words, these costs plays no role in decision making, in the current period. While considering the replacement of a plant, the depreciated book value of the old plant is irrelevant, as the amount is a sunk cost which is to be written off at the time of replacement.

(ii) **Pre-production Costs:** These costs forms the part of development cost, incurred in making a trial production run, preliminary to formal production. These costs are incurred when a new factory is in the process of establishment or a new project is undertaken or a new product line or product is taken up, but there is no established or formal production to which such costs may be charged. These costs are normally treated as deferred revenue expenditure (except the portion which has been capitalised) and charged to the costs of future production.

(iii) **Research and Development Costs:** Research costs are the costs incurred for the discovery of new ideas or processes by experiment or otherwise and for using the results of such experimentation on a commercial basis. Research costs are defined as the costs of searching for new or improved products, new applications of materials, or improved methods, processes, systems or services.

Development costs, are the costs of the process which begins with the implementation of the decision to produce a new or improved product or to employ a new or improved method and ends with the commencement of formal production of that product by that method.

(iv) **Training Costs:** These costs comprises of – wages and salaries of the trainees or learners, pay and allowances of the training and teaching staff, payment of fees etc., for training or for attending courses of studies sponsored by outside agencies and cost of materials, tools and equipments used for training. Costs incurred for running the training department, the losses arising due to the initial lower production, extra spoilage etc. occurring while providing training facilities to the new recruits.

All these costs are booked under separate standing order numbers for the various functions. Usually there is a service cost centre, known as the Training Section, to which all the training costs are allocated. The total cost of training section is thereafter apportioned to production centers.

Question 7

Discuss the four different methods of costing alongwith their applicability to concerned industry? **(Nov. 1999, 4 Marks)**

Answer

Four different methods of costing along with their applicability to concerned industry have been discussed as below:

1. **Job Costing:** The objective under this method of costing is to ascertain the cost of each job order. A job card is prepared for each job to accumulate costs. The cost of the job is determined by adding all costs against the job it is incurred. This method of costing is used in printing press, foundries and general engineering workshops, advertising etc.
2. **Batch Costing:** This system of costing is used where small components / parts of the same kind are required to be manufactured in large quantities. Here batch of similar products is treated as a job and cost of such a job is ascertained as discussed under 1, above. If in a cycle manufacturing unit, rims are produced in batches of 2,500 units each, then the cost will be determined in relation to a batch of 2,500 units.
3. **Contract Costing:** If a job is very big and takes a long time for its completion, then method used for costing is known as Contract Costing. Here the cost of each contract is ascertained separately. It is suitable for firms engaged in the construction of bridges, roads, buildings etc.
4. **Operating Costing:** The method of Costing used in service rendering undertakings is known as operating costing. This method of costing is used in undertakings like transport, supply of water, telephone services, hospitals, nursing homes etc.

Question 8

How would you treat the following in Cost Accounts?

(i) Employee welfare costs **(2 Marks)**

(ii) Research and development costs **(2 Marks)**

(iii) Depreciation (May, 1996) **(2 Marks)**

Answer

(i) **Employee Welfare Costs:** It includes those expenses, which are incurred by the employers on the welfare activities of their employees. The welfare activities on which these expenses are usually incurred may include canteen, hospital, play grounds, etc. These expenses should be separately recorded as Welfare Department Costs. These Costs may be apportioned to production cost centres on the basis of total wages or the number of men employed by them.

(ii) **Research and development costs:** It is the cost/expense incurred for searching new or improved products, production methods/techniques or plants/equipments. Research cost may be incurred for carrying basic or applied research. Both basic and applied research relates to original investigations to gain from new scientific or technical knowledge and understanding, which is not directed towards any specific practical aim (under basic research) and is directed towards a specific practical aim or objective (under applied research).

Treatment in Cost Accounts: Cost of Basic Research (if it is a continuous activity) be charged to the revenues of the concern. It may be spread over a number of years if research is not a continuous activity and amount is large. Cost of applied research, if relates to all existing products and methods of production then it should be treated as a manufacturing overhead of the period during which it has been incurred and absorbed. Such costs are directly charged to the product, it is solely incurred for it.

If applied research is conducted for searching new products or methods of production etc. then the research costs treatment depends upon the outcome of such research. For example, if research findings are expected to produce future benefits or if it appears that such findings are going to result in failure then the costs incurred may be amortised by charging to the Costing Profit and Loss Account of one or more years depending upon the size of expenditure. If research proves successful, then such costs will be charged to the concerned product.

Development Costs begins with the implementation of the decision to produce a new or improved product or to employ a new or improved method. The treatment of development expenses is same as that of applied research.

(iii) **Depreciation:** It represents the fall in the asset value due to its use, wear and tear and passage of time. Depreciation is an indirect cost of production and operations. It is an important element of cost and without this true cost of production cannot be obtained. In costing; depreciation on plant and machinery is normally treated as part of the factory overheads.

Question 9

Discuss the treatment in cost accounts of the cost of small tools of short effective life.

(May 2002, 4 Marks)

Answer

Small tools are mechanical appliances used for various operations on a work place, specially in engineering industries. Such tools include drill bits, chisels, screw cutter, files etc.

Treatment of cost of small tools of short effective life:

(i) Small tools purchased may be capitalized and depreciated over life if their life is ascertainable. Revaluation method of depreciation may be used in respect of very small tools of short effective life. Depreciation of small tools may be charged to :

- Factory overheads
- Overheads of the department using the small tool.

(ii) Cost of small tools should be charged fully to the departments to which they have been issued, if their life is not ascertainable.

Question 1

What is an idle capacity? What are the costs associated with it? How are these treated in product costs?

Answer

Idle Capacity: Idle capacity is that part of the capacity of a plant, machine or equipment which cannot be effectively utilised in production. In other words, it is the difference between the practical or normal capacity and capacity of utilisation based on expected sales. For example, if the practical capacity of production of a machine is to the tune of 10,000 units in a month, but is used only to produce 8,000 units, because of market demand of the product, then in such a case, 2,000 units will be treated as the idle capacity of the machine.

The idle capacity may arise due to lack of product demand, non-availability of raw-material, shortage of skilled labour, absenteeism, shortage of power, fuel or supplies, seasonal nature of product, etc.

Idle Capacity Costs: Costs associated with idle capacity are mostly fixed in nature. These include depreciation, repairs and maintenance charges, insurance premium, rent, rates, management and supervisory costs. These costs remain unabsorbed or unrecovered due to under-utilisation of plant and service capacity. Idle capacity cost can be calculated as follows:

Idle capacity cost = × Idle Capacity

Treatment of Idle capacity cost: Idle capacity costs can be treated in product costing, in the following ways :

(i) If the idle capacity cost is due to unavoidable reasons such as repairs, maintenance, changeover of job, etc., a supplementary overhead rate may be used to recover the idle capacity cost. In this case, the costs are charged to the production capacity utilised.

(ii) If the idle capacity cost is due to avoidable reasons such as faulty planning, power failure etc., the cost should be charged to profit and loss account.

(iii) If the idle capacity cost is due to seasonal factors, then, the cost should be charged to the cost of production by inflating overhead rates.

Question 2

Describe job Costing and Batch Costing giving example of industries where these are used? **(May 2001, 3 Marks)**

Answer

Job Costing: It is a method of costing which is used when the work is undertaken as per the customer's special requirement. When an inquiry is received from the customer, costs expected to be incurred on the job are estimated and on the basis of this estimate, a price is quoted to the customer. Actual cost of materials, labour and overheads are accumulated and on the completion of job, these actual costs are compared with the quoted price and thus the profit or loss on it is determined.

Job costing is applicable in printing press, hardware, ship-building, heavy machinery, foundry, general engineering works, machine tools, interior decoration, repairs and other similar work.

Batch Costing: It is a variant of job costing. Under batch costing, a lot of similar units which comprises the batch may be used as a unit for ascertaining cost. In the case of batch costing separate cost sheets are maintained for each batch of products by assigning a batch number. Cost per unit in a batch is ascertained by dividing the total cost of a batch by the number of units produced in that batch.

Such a method of costing is used in the case of pharmaceutical or drug industries, ready-made garment industries, industries, manufacturing electronic parts of T.V. radio sets etc.

Question 3

Distinguish between Job Costing & Batch Costing? **(Nov. 2004, Nov. 2006, 2 Marks)**

Answer

Job Costing and Batch Costing

Accounting to job costing, costs are collected and accumulated according to job. Each job or unit of production is treated as a separate entity for the purpose of costing. Job costing may be employed when jobs are executed for different customers according to their specification.

Batch costing is a form of job costing, a lot of similar units which comprises the batch may be used as a cost unit for ascertaining cost. Such a method of costing is used in case of pharmaceutical industry, ready-made garments, industries manufacturing parts of TV, radio sets etc.

Question 1

Distinguish between job costing and process costing?

Answer

The main points, which distinguishes job costing and process costing are as below:

	Job Costing	Process Costing
(i)	A Job is carried out or a product is produced by specific orders.	The process of producing the product has a continuous flow and the product produced is homogeneous.
(ii)	Costs are determined for each job.	Costs are compiled on time basis i.e., for production of a given accounting period for each process or department.
(iii)	Each job is separate and independent of other jobs.	Products lose their individual identity as they are manufactured in a continuous flow.
(iv)	Each job or order has a number and costs are collected against the same job number	The unit cost of process is an average cost for the period.
(v)	Costs are computed when a job is completed. The cost of a job may be determined by adding all costs against the job.	Costs are calculated at the end of the cost period. The unit cost of a process may be computed by dividing the total cost for the period by the output of the process during that period.
(vi)	As production is not continuous and each job may be different, so more managerial attention is required for effective control.	Process of production is usually standardized and is therefore, quite stable. Hence control here is comparatively easier

Question 2

Explain normal wastage, abnormal wastage and abnormal gain and state, how they should be dealt with in process Cost Accounts.

(November 1998, 6 Marks)

Answer

Normal wastage: It is defined as the loss of material which is inherent in the nature of work. Such wastage can be estimated in advance on the basis of past experience or technical specifications. If the wastage is within the specified limit, it is considered as normal. Suppose a company states that the normal wastage in Process A will be 5% of

input. In such a case wastage upto 5% of input will be considered as normal wastage of the process.

When the wastage fetches no value, the cost of normal wastage is absorbed by good production units of the process and the cost per unit of good production is increased accordingly. If the normal wastage realises some value, the value is credited to the process account to arrive at normal cost of normal output.

Abnormal wastage: It is defined as the wastage which is not inherent to manufacturing operations. This type of wastage may occur to the carelessness of workers, a bad plant, design etc. Such a wastage cannot be estimated in advance.

The units representing abnormal wastage are valued like good, units produced and debited to the separate account which is known as abnormal wastage account. If the abnormal wastage fetches some value, the same is credited to abnormal wastage account. The balance of abnormal wastage account i.e. difference between value of units representing abnormal wastage minus realisation value is transferred to Costing profit and loss account for .the year.

Abnormal gain: It is defined as unexpected gain in production under normal conditions. In other words, if the actual process waste is less than the estimated normal waste, the difference is considered as abnormal gain. Suppose, a Company states that 10% of its input will be normal loss of process A. If input of this company is 100 units then its normal output should be 90 units. If actual output is 95 units, then, 5 units will represent its abnormal gain! These units which represents abnormal gain are valued like normal output of the process. The concerned process account is debited with the quantity and value of abnormal gain. The abnormal gain account is credited with the figure of abnormal gain amount. Abnormal gain being the result of actual wastage, or loss being less than the normal. The scrap realisation shown against normal wastage gets reduced by the scrap value of abnormal gain. Consequently; there is an apparent loss by way of reduction in the scrap realisation attributable to abnormal effectives. This loss is set off against abnormal effectives by debiting, the account. The balance; of this account becomes abnormal gain and is transferred to; costing profit and loss account.

Question 1

Distinguish between Joint Product and By Product

Answer

Joint-product and By-product:

Joint products and by-products arise from many industrial processes wherein, from a set of common inputs, two or more products of varying importance are obtained. For example, when hydrogenated oil is processed, along with oil, oxygen gas is also produced molasses is produced along with sugar automatically. Some of the products are not of much importance from the sales-value point of view, like molasses in the case of sugar, but in some cases the products are all of importance. Usually, the term by-product is used in the former case and joint products in the other case. One can see that distinction between joint products and by-products turns on their relative importance which sometimes makes it difficult to make a distinction. However, one point to keep note of it is that, usually, in the case of joint products further processing is required, after initial common process, before the products are sold.

Thus joint products 'represent two or more products separated in the course of the same processing operations, usually requiring further processing, each product being in such proportion that no single product can be designated as a major product.'

By-products may be defined as any saleable or usual value incidentally produced in addition to the product.' Sometimes the word wastage or even loss is used to denote what is really a by-product. For example, in a thermal power plant, ash will remain when coal is used up. In a place where good deal of construction activity is going on, the ash will have a market-it is a case of by-product even if it is termed as wastage.

Question 1

Distinguish between Fixed and flexible budget. **(4 Marks, November 2011)**

Answer

Difference between fixed and flexible budgets

S.No.	Fixed Budget	Flexible Budget
1.	It does not change with actual volume of activity achieved. Thus it is rigid	It can be re-casted on the basis of activity level Thus it is not rigid.
2.	It operates on one level of activity and under one set of conditions	It consists of various budgets for different level of activity
3.	If the budgeted and actual activity levels differ significantly, then cost ascertainment and price fixation do not give a correct picture.	It facilitates the cost ascertainment and price fixation at different levels of activity.
4.	Comparisons of actual and budgeted targets are meaningless particularly when there is difference between two levels.	It provided meaningful basis of comparison of actual and budgeted targets.

Question 1

What do you understand by Key factor? Give two examples of it.

(2 Marks, May 2010)

Answer

Key factor is a factor which at a particular time or over a period limits the activities of an undertaking. It may be the level of demand for the products or service or it may be the shortage of one or more of the productive resources.

Examples of key factors are:

(a) Shortage of raw material.
(b) Shortage of Labour.
(c) Plant capacity available.
(d) Sales capacity available.
(e) Cash availability

SERVICE COSTING OR OPERATING COSTING

Question 1

What do you understand by operating costing? How are composite units computed?

(4 Marks, November 2012)

Answer

Meaning of Operating Costing:

Operating Costing is a method of ascertaining costs of providing or operating a service. This method of costing is applied by those undertakings which provide services rather than production of commodities. This costing method is usually made use of by transport companies, gas and water works departments, electricity supply companies, canteens, hospitals, theatres, schools etc.

Computation of composite units:

When two units are merged into one it is called Composite units. It is explained with example as follows.

Composite units i.e. tonnes kms., quintal kms. etc. may be computed in two ways.

(i) Absolute (weighted average) tonnes-kms.

Absolute tonnes-kms, are the sum total of tonnes-kms., arrived at by multiplying various distances by respective load quantities carried.

(ii) Commercial (simple average) tonnes-kms. Commercial tonnes-kms., are arrived at by multiplying total distance kms., by average load quantity.

Question 1

Discuss briefly how the following items are to be treated in costs :

(i) Carriage inwards raw materials

(ii) Storage losses

(iii) Cash discount received

(iv) Insurance costs on stocks of raw materials.

Answer

(i) **Carriage inwards on raw materials:** It represents the expenditure incurred in bringing raw materials to factory from outside. This expense is directly allocated to materials and thus forms a part of the .cost of such materials. When this is not practicable and allocation to specific items of materials is difficult, the expense is treated as manufacturing overhead and is charged to cost of production at a re-determined rate. In some of the undertakings the practice is to charge these expenses as a percentage of cost, weight or some other physical unit of material.

(ii) **Storage losses:** The losses arising out of storage of material can be classified into two categories. The treatment of losses under each category in Cost Accounts is as under:

(a) Losses due to reasons like evaporation, shrinkage, absorption and moisture, etc. are considered as normal losses. Such losses are absorbed by good production units by inflating the cost of material issued for production.

(b) Losses due to fire, flood, storm, theft etc. are treated as abnormal losses. If these losses are heavy and are not recoverable from the insurance authorities, it is preferred to charge them to Costing Profit and Loss Account.

(iii) **Cash discount received:** It is an allowance given by the vendor for prompt payment of material price. The opinion among accountants about its treatment differs. Two prevalent approaches for treating the cash discount received are as follows:

(a) The cash discount received in the course of materials buying should be deducted from the invoice price of the materials. This way the discount received will reduce the purchase price of the materials.

(b) It may be treated as an item of financial nature and therefore be kept outside the purview of cost accounting. However, it can be dealt in the following manner. The full invoice price should be charged to the material account crediting the suppliers with the net invoice price, and the discount earned account with

the amount of cash discount received. If the prompt payment could not be made, the discount lost is debited to the discount lost account. Any difference between the discount earned and discount lost may be treated as an item of administrative overhead.

(iv) **Insurance costs on stocks of raw materials** : The amount paid as insurance costs (insurance premium) on stocks of raw materials is meant for covering the risk which may arise due to fire, theft, riot etc. The insurance cost is apportioned over different materials on the basis of their value. This cost may be charged directly to the cost of material.

Question 2

What is ABC analysis? Discuss its role in a sound system of material control.

Answer

ABC analysis is a technique through which selective control can be exercised over the various items of inventory. These days the manufacturing units have such a large number of items in their stores that it is often not possible for the management to pay minute attention to each and every item. A system is therefore divided by which these items are classified according to their importance and then selective control exercised. ABC analysis or Selective Inventory Control is a technique whereby the measure of control over an item of inventory varies directly with its usage value. In other words, the high value items are controlled more closely than the items of low value.

To classify the various items according to their usage value, the following procedure is adopted:

(a) The quantity or the number of parts expected to be used for production in the given period is estimated.

(b) The quantity as estimated above is multiplied by the unit value of the item.

(c) All the items are then re-arranged according to their usage value in a descending order.

(d) It would normally be found that a small number of items add upto a very high value. Thus 5 to 10 percent of total items may constitute 70 to 85 percent of material cost. Such items are classified as A items. Another 10 to 20 percent of total items may represent 10 to 20 percent of the total material cost. These items may be categorised as B items. The rest, i.e. 70 to 85-percent of items, though numerous, will thus form only 5 to 10 percent of total material cost. These may be called C items.

This classification thus highlights the more significant items. Management can then exercise a very close control over A items. It may apply occasional control over B items. As regards C items, it may exercise control only in a general manner. For example, it may order the quantities of C items annually or once in six months or so. It is obvious that since C items do not have a high value, the total investment in such items will not be large.

Regarding A items, the management will have to define the stock levels, i.e., maximum, minimum, reordering and danger very carefully. Also a close check on the consumption of these items will have to be kept. The economic order quantity for each of the items in this category should be worked out. Similarly other technique of inventory control should also be applied to A items. It would be appreciated that since A items constitute the bulk of the investment in the total inventory, it would be worthwhile to bring them under close control and to apply modern management inventory control techniques.

ABC analysis helps the management in the following ways:

(1) The investment in inventories is optimised through a close and direct control over A items. This would naturally release funds which can then be channelised into more profitable areas. This would raise the overall return on investment earned by the unit.

(2) The ordering and carrying costs are reduced since the management would attempt to optimise such costs so far as they relate to the bulk of the items.

(3) If the management seeks to exercise direct control over all the items of inventory, the inventory control system would become very expensive. ABC analysis therefore cuts down the cost of the system and relates its cost to the attendant benefits.

(4) The main objectives of inventory control are fulfilled under this system at the minimum cost. With scientific control of inventories, the stock turnover rate can be maintained at comparatively high levels.

The concept of ABC analysis can be used in areas other than inventory also. This technique basically emphasises that where the items to be controlled are numerous, one should categorise them according to their importance. Close control should then be exercised on the most significant category. On the less important categories, the degree of control maybe related to the benefit from control.

Thus finally it may be concluded that ABC analysis plays an important role for a sound system of material control.

Question 3

Distinguish clearly Bincards and Stores Ledger. **(May 1999, 4 Marks)**

Answer

Both bin cards and stores ledger are perpetual inventory records. None of them is a substitute for the other. These two records may be distinguished from the following points of view:

(i) Bin card is maintained by the store keeper, while the stores ledger is maintained by the cost accounting department.

(ii) Bin card is the stores recording document whereas the stores ledger is an accounting record.

(iii) Bin card contains information with regard to quantities i.e. their receipt, issue and balance while the stores ledger contains both quantitative and value information in respect of their receipts, issue and balance.

(iv) In the bin card entries are made at the time when transaction takes place. But in the stores ledger entries are made only after the transaction has taken place.

(v) Inter departmental transfer of materials appear only in stores ledger.

(vi) Bin cards record each transaction but stores ledger records the same information in a summarized form.

Question 4

What is Just in Time (JIT) purchases? What are the advantages of such purchases? **(May 1999, 3 Marks)**

Answer

Just in time (JIT) purchases means the purchase of goods or materials such that delivery immediately precedes their use.

Advantages of JIT purchases:

Main advantages of JIT purchases are as follows :

1. The suppliers of goods or materials cooperates with the company and supply requisite quantity of goods or materials for which order is placed before the start of production.
2. JIT purchases results in cost savings for example, the costs of stock out, inventory carrying, materials handling and breakage are reduced.
3. Due to frequent purchases of raw materials, its issue price is likely to be very close to the replacement price. Consequently the method of pricing to be followed for valuing material issues becomes less important for companies using JIT purchasing.

4. JIT purchasing are now attempting to extend daily deliveries to as many areas as possible so that the goods spend less time in warehouses or on store shelves before they are exhausted.

Question 1

Distinguish between Idle Time and Idle Facilities. How are they treated in Cost Accounts? Develop a system of control for Idle Time in a factory.

Answer

Idle time:

It refers to the labour time paid for but not utilised on production. Idle time thus represents the time for which wages are paid but no output is obtained. This is the period during which the workers remain idle. It arises due to various reasons. According to reasons, idle time can be classified into normal idle time and abnormal idle time. Normal idle time is the time which cannot be avoided or reduced in the normal course of business. For example, some labour time is bound to be lost due to the time taken by workers to cover the distance between the factory gate and the department or the actual work place where they are working. Sometime also elapses between the finishing of one job and the starting of another job. Since a worker cannot work continuously for the whole day, sometime is required during which he attends to this personal needs, such as taking lunch or rest to avoid normal fatigue. It is thus obvious that normal idle time is unavoidable. Abnormal idle time may arise because of inefficiency, mischief and misfortune such as breakdown of machines for a long period, power failure, non-availability of materials, etc. generally, it is avoidable and controllable. However, abnormal idle time arising on account of strike, lockouts, floods, etc. may be uncontrollable. By proper care and caution abnormal idle time can be reduced or eliminated to a very great extent.

Idle facilities:

The terms facilities has a wider connotation. It may include production capacity as well. Facilities may be provided by the fixed assets such as building space, plant/equipment capacity etc., or by various service functions such as material services, production services, personnel services etc., if a firm is not able to make full use of all these facilities then the firm may be said to have idle facilities. Thus, idle facilities refer to that part of total production facilities available which remain unutilized due to any reason such as non-availability of raw-material, etc. Idle facilities differ from idle time. A firm may have idle facilities even when it works full time; e.g., when facilities have been provided on too large a scale.

Treatment of idle time in Cost Accounting:

Treatment of idle time in coast accounting depends upon its nature. The cost of normal idle time is charged to the cost of production. This may be done by inflating the labour rate or the normal idle time may be transferred to factory overhead for absorption through factory overhead absorption rate. In relative terms, the cost of normal idle time is generally nominal. As against normal idle time cost, the cost of abnormal idle time sometime may be quite substantial. Since these costs are beyond the control of the management and being abnormal in nature, they do not form part of cost of production. Therefore, payment for them is not included in cost of production and is transferred to costing profit and loss account.

Treatment of idle facilities in Cost Accounting:

Normal idle facilities cost which arises due to unavoidable reasons, should be included in the works overhead. On the other hand, abnormal idle facilities cost which arises due to plants or machines/facilities remaining idle on account of trade depression or for want of work etc., should be written off to costing profit and loss account.

System of controlling idle time:

The system of idle time control aims at controlling the time for which a worker has been paid but has not been utilised for productive purposes. Such a loss of time is know as idle time. The control of idle time requires the use of a proper system of recording the idle time, ascertaining its reasons for occurrence and initiating suitable administrative action to stop its reoccurrence.

To record the duration of idle time and to ascertain the reasons of its occurrence, the format given as below may be used. This format not only records the time paid for but also the standard time which a worker should take to produce a unit of output. The time actually paid on comparison with standard time may reveal the element of idle time, if any. After this the reasons for the occurrence of idle time should be ascertained and stated in the suitable column of the format. In this way a statement of labour time utilization is usually prepared. Such a statement is quite useful to the officers who are concerned with the control of idle time. In fact it serve as a sound basis for their actions to control idle time. Such a statement clearly points out to persons responsible for the control of idle time the reasons for the occurrence of idle time.

Finally, the concerned officer may suggest the remedial measures to minimize the occurrence of idle time in future.

Question 2

What do you understand by Overtime Premium?

What is the affect of overtime payment on productivity and cost?

Discuss the treatment of overtime premium in cost accounts and suggest a procedure for control of overtime work.

Answer

Overtime premium:

Overtime is the amount of wages paid for working beyond normal working hours as specified by Factories Act or by a mutual agreement between the workers union and the management. According to Factories Act of 1948, a worker is entitled for overtime at double the rate of his wages (including allowances) if he works beyond 9 hours in a day or 48 hours in a week even where the Act is not applicable, the practice is to pay for overtime work at higher rates usually in accordance with a standing agreement between the employer and the workers. Hence, payment of overtime consists of two elements, the normal wages i.e., the usual amount, and the extra payment i.e., the premium. This amount of extra payment paid to a worker under overtime is known as overtime premium.

The overtime payment affects the productivity and cost in many ways as follows :

(i) During overtime period the efficiency of a worker is low. This causes reduced productivity, thus during this period the productivity is lesser than the normal one.

(ii) In their anxiety to earn more, the workers may not concentrate on work during normal time and thus the output during normal hours may also fall.

(iii) The practice of resorting to overtime adversely affects workers' health which may lead to increase in accident rate and consequently a decrease in productivity.

(iv) Due to overtime, it is not possible to carry out necessary maintenance of plants and machinery. Such a situation results occasionally in a major breakdown and hence accounts for the stoppage of production cycle.

(v) Reduced output and increased premium are responsible for bringing an increase in cost of production.

Overtime premium is a part of total wages of overtime period. In cost accounting the treatment of overtime premium will be as follows:

(i) If the overtime is resorted to at the desire of the customer, then the entire amount of overtime including overtime premium should be charged to the job directly.

(ii) If it is due to a general pressure of work to increase the output, the premium as well as overtime wages may be charged to general overheads.

(iii) If it is due to the negligence or delay of workers of a particular department, it may be charged to the concerned department.

(iv) If it is due to circumstances beyond control, it may be charged to Costing Profit & Loss Account.

As regards the control of overtimes is concerned, it is difficult to eliminate it completely. But it is not difficult to control it and to keep it to the barest minimum.

The procedure for control of overtime work involves the following steps :

1. Entire overtime work should be duly authorized after investigating the reasons for it.
2. Overtime cost should be shown against the concerned department. Such a practice should enable proper investigation and planning of production in future.
3. If overtime is a regular feature, the necessity for recruiting more men and adding a shift should be considered.
4. If overtime is due to lack of plant and machinery or other resources, steps may be taken to install more machines, or to resort to sub contracting.

Question 3

Discuss the three methods of calculating labour turnover. **(Nov. 2004, 3 Marks)**

Answer

Methods of Calculating labour turnover

(i) Replacement method = $\frac{\text{No. of employees replace dx}}{\text{Average number of employees on roll}} \times 100$

(ii) Separation method = $\frac{\text{No. of employees separated during the year}}{\text{Average no. employees on the roll during the year}} \times 100$

(iii) Flux method = $\frac{\text{(No. of employees separated + No. of employees replac ed)}}{\text{Average no. employees on the roll during the year}} \times 100$

MULTIPLE CHOICE QUESTIONS

1 COST SHEET

THEORY BASED

1. Royalty paid on the basis of production is an example of –
   (a) Direct expenses
   (b) Administration overheads - Related to production
   (c) Administration overheads - General
   (d) Selling overheads

2. Carriage inward paid on raw material purchased should be added to –
   (a) Raw material sold (b) Finished goods purchased
   (c) Finished goods sold (d) None of the above

3. Secondary packing cost incurred should be shown after –
   (a) Factory cost (b) Cost of production
   (c) Cost of goods sold (d) Cost of sales

4. Penalty, fines and damages should be shown as –
   (a) Part of raw materials purchased
   (b) Part of factory overheads
   (c) Part of administration overheads - general
   (d) Doesn't form part of cost

5. Cost pertaining to or arising out of a pandemic should be part of
   (a) Cost of production (b) Cost of acquisition
   (c) Cost of supply of goods (d) None of the above

6. Job charges paid to job workers is an example of –
   (a) Direct wages (b) Factory overheads
   (c) Direct expenses (d) None of the above

7. Cost sheet usually shows _____ classification of costs.
   (a) Direct (b) Indirect
   (c) Functional (d) Variable

8. Depreciation on plant and machinery is part of –
   (a) Factory overheads
   (b) Direct expenses
   (c) Administration overheads - Related to production
   (d) Selling expenses

9. Hire charges paid for special machine required for production should be part of
   (a) Factory overheads (b) Direct expenses
   (c) Administration overheads - General (d) Distribution expenses

10. Cost of administration of factory work should be classified as:
   (a) Selling and distribution expenses
   (b) Administration overheads - Related to production
   (c) Administration overheads - General
   (d) Factory overheads

11. Sum total of factory cost and office and administrative overheads –
   (a) Prime cost (b) Work cost
   (c) Cost of production (d) Cost of sale

12. In cost sheet we record only incomes i.e. sale of goods and sale of –
   (a) Services (b) Scrap
   (c) Assets (d) Shares

13. Overheads consist of all the following except –
   (a) Indirect materials (b) Factory utilities
   (c) Direct labour (d) Indirect labour

14. Direct materials + Direct labour + Direct expenses =

(a) Works costs (b) Cost of production

(c) Cost of sates (d) Prime cost

15. Variable cost per unit _____

(a) Remains constant (b) Varies

(c) decreases (d) Increase

NUMERICAL BASED

1. Opening stock of raw materials ₹ 10,000
Purchases of raw materials ₹ 1,00,000
Raw materials consumed ₹ 60,000
Closing stock of raw materials ?

(a) ₹ 2,00,000 (b) ₹ 60,000

(c) ₹ 50,000 (d) ₹ 55,000

2. Opening stock of finished goods 10,000 units
Closing stock of finished goods 20,000 units
No. of units produced 1,00,000 units
No. of units sold ?

(a) 80,000 units (b) 90,000 units

(c) 1,00,000 units (d) 70,000 units

3. Using the information in above question 2, what will be the closing stock on FIFO basis, given that cost of production is ₹ 11,00,000?

(a) ₹ 2,25,000 (b) ₹ 1,25,000

(c) ₹ 1,20,000 (d) ₹ 2,20,000

4. Opening stock 10,000 units valued at ₹ 9.00 p.u.
No. of units produced in current year 1,00,000 units
Current year's cost of production ₹ 20,00,000
Closing stock 5,000 units
The value of closing stock under weighted average method will be –

(a) ₹ 90,000 (b) ₹ 95,000

(c) ₹ 1,00,000 (d) ₹ 80,000

Consider the following details to answer questions 5 to 9

	₹
Opening stock of raw materials	10,000
Purchase of raw materials	3,00,000
Closing stock of raw materials	20,000
Carriage inward	15,000
Scrap of raw materials	2,000
Purchase return	4,000
Direct wages	1,50,000
Cost of special module & dyes	30,000
Special machine hire charges	15,000
Stores consumed	20,000
Factory rent, rates & taxes	7,000

5. Raw materials consumed will be –
   (a) ₹ 3,00,000 (b) ₹ 2,99,000
   (c) ₹ 2,99,900 (d) ₹ 3,00,100

6. Total direct expense will be –
   (a) ₹ 45,000 (b) ₹ 1,95,000
   (c) ₹ 6,50,000 (d) ₹ 72,000

7. Prime Cost will be –
   (a) ₹ 2,99,000 (b) ₹ 4,49,000
   (c) ₹ 3,03,000 (d) ₹ 4,94,000

8. Total factory overheads will be –
   (a) ₹ 65,000 (b) ₹ 15,000
   (c) ₹ 45,000 (d) ₹ 27,000

9. Factory Cost will be –
   (a) ₹ 3,49,000 (b) ₹ 27,000
   (c) ₹ 5,21,000 (d) None of the above

10. If opening stock of raw material is ₹ 60,000, closing stock of raw material is ₹ 45,000 and raw materials consumed is ₹ 75,000; then the amount of material purchased will be –

(a) ₹ 60,000 (b) ₹ 90,000
(c) ₹ 30,000 (d) None of the above

11. From the following details calculate Prime Cost. Material consumed ₹ 1,00,000, Productive wages ₹ 50,000, Direct expenses at 50% of material used & direct wages.

(a) ₹ 3,25,000 (b) ₹ 3,50,000
(c) ₹ 2,30,000 (d) ₹ 2,25,000

12. If Prime Cost is ₹ 16,000; factory overheads are 25% of prime cost and office overheads are 75% of factory overheads then Cost of Production would be:

(a) ₹ 3,000 (b) ₹ 15,000
(c) ₹ 23,000 (d) None of these

13. Job ABC was unfinished at the end of the accounting period. The factory cost assigned to the job is ₹ 12,000 of which ₹ 3,000 is direct material. Factory overhead is allocated to job at 150% of direct labour cost. What was the amount of direct labour charged to Job ABC?

(a) ₹ 9,000 (b) ₹ 3,600
(c) ₹ 4,500 (d) ₹ 3,000

14. T company manufactures computer stands. What is the opening stock of finished goods, if cost of goods sold is ₹ 1,07,000; the ending balance of finished goods inventory is ₹ 20,000; and factory cost is ₹ 50,000 less than cost of goods sold.

(a) ₹ 70,000 (b) ₹ 77,000
(c) ₹ 57,000 (d) ₹ 1,27,000

15. If units produced during the month are 10,000 (out of which 2,000 units were unsold), cost of production is ₹ 62,000 and selling expenses per unit are ₹ 1.80; the cost of sales would be:

(a) ₹ 64,000 (b) ₹ 67,600
(b) ₹ 92,400 (d) None of these

2 ABSORPTION COSTING AND OVERHEADS

THEORY BASED

1. Identify the overheads not covered by functional classification.
   (a) Factory Overhead (b) Administrative Overhead
   (c) Fixed Overhead (d) Selling Overhead

2. Allotment of whole item of cost to a cost centre or cost unit is known as _____ .
   (a) Cost Apportionment (b) Cost Allocation
   (c) Cost Absorption (d) Machine hour rate

3. A method of dealing with overheads involves spreading common costs over departments on the basis of benefit received. This is known as:
   (a) Overhead absorption
   (b) Overhead apportionment
   (c) Overhead identification
   (d) Overhead analysis

4. The process of 'allocation' and 'apportionment' of various costs to various department or cost centres is known as _____ of overheads.
   (a) Secondary distribution (b) Preliminary distribution
   (c) Primary distribution (d) Equitable distribution

5. Rent, rates and taxes paid for the building are apportioned on the basis of –
   (a) Floor area (b) Capital value
   (c) No. of employees (d) Direct labour hours

6. It is not appropriate to apportion the following overheads on the basis of direct labour?
   (a) Executive Salaries (b) Fringe benefits to worker
   (c) PF contribution (d) Leave with pay

7. Statement-I: Departmentalisation of items of costs is known as primary distribution.
   Statement-II: Redistribution of service department's costs is known as secondary distribution.

Choose the correct option –

(a) Statement-I is true but Statement-II is false

(b) Both statements are true

(c) Statement-I is false but Statement-II is true

(d) Both statements are false

8. When allocating service department costs to production departments, which one of the following is not a method of re-distribution –

(a) Floor area based distribution

(b) Direct distribution

(c) Repeated distribution

(d) Trial and error method of distribution

9. Which one of the following is not a part of reciprocal method for re-distribution of service departments' overheads to production departments –

(a) Simultaneous equation method (b) Step method

(c) Repeated distribution method (d) Trial and error method

10. Which method of absorption of factory overheads would you suggest in a concern which produces only one uniform item of product –

(a) Percentage of direct wage basis (b) Direct labour hour rate

(c) Machine-hour rate (d) Rate per unit of output

11. Blanket overhead rate is _____ .

(a) One single overhead absorption rate for the whole factory

(b) Rate which is blank or nil rate

(c) Rate in which multiple overhead rates are calculated for each production department, service department etc.

(d) Always a machine hour rate

12. Which of the following formula is used to calculate the overheads to be absorbed –

(a) Standard rate per hour x Standard hours produced

(b) Budgeted hours x Standard overheads rate per hour

(c) Actual hours x Standard rate per hour

(d) Actual output x Actual overheads rate per unit

13. If the actual expenses fall short of the amount absorbed, it is known as –
    (a) Under absorption (b) Over absorption
    (c) Allocation (d) Apportionment

14. Which of the following methods is used to account for the under-absorption and over-absorption of overheads –
    (a) Use of supplementary rates
    (b) Carrying forward of overheads
    (c) Writing-off to costing profit and loss account
    (d) All of the above

15. Over-absorption of factory overheads due to inefficiency management should be treated by –
    (a) Use of supplementary rate
    (b) Transfer to costing profit and loss account
    (c) Carry forward to next year
    (d) Transfer to production account

16. The rate used in addition to the original rate of ascertaining the profit for adjusting the under or over absorption is known as –
    (a) Pre-determined rate (b) Supplementary overheads rate
    (c) Blanket rate (d) Multiple overheads rate

17. Computation of overheads absorption rate should be based on –
    (a) Maximum capacity (b) Normal capacity
    (c) Practical capacity (d) Idle capacity

NUMERICAL BASED

1. The following data relates to two activity level of production:

	Level I	Level II
No. of units:	4,000	5,500
Overheads (₹)	2,80,000	3,50,000

Variable cost per unit would be –
(a) ₹ 46.67 (b) ₹ 133.33
(c) ₹ 70 (d) ₹ 64

2. The following data is available for Akhil Ltd. for the year ended 31st March 2015:

Administrative overheads	:	₹ 2,50,000
Production overheads	:	₹ 2,74,200
Factory cost	:	₹ 3,42,800
Work-in-progress	:	₹ 74,000
Machine hour	:	4,000 hours

The absorption rate for production overheads is –

(a) ₹ 68.55 (b) ₹ 216.75

(c) ₹ 235.25 (d) ₹ 198.25

3. The following information relates to the production department of a factory:

Materials used	₹ 30,000
Direct labour	₹ 20,000
Overheads	₹ 5,000

On an order carried out in the department, direct wages amounted to ₹ 3,000. Find out the overheads chargeable to this order on the basis of direct wages:

(a) ₹ 700 (b) ₹ 650

(c) ₹ 800 (d) ₹ 750

4. The following particulars relate to production department of a factory:

Material used:	₹ 20,000
Direct labour:	₹ 10,000
Overheads:	₹ 7,500

On an order carried out in the department, material consumed was ₹ 4,000 and direct wages paid amounted to ₹ 2,000. The amount of overheads chargeable to this order on the basis of prime cost would be –

(a) ₹ 1,500 (b) ₹ 1,510

(c) ₹ 1,700 (d) ₹ 1,710

5. You are given the following information:

(i)	Total number of workers working in a department	500
(ii)	Working days in a year	300
(iii)	Number of hours worked in a day	8
(iv)	Total departmental overheads	₹ 68,400
(v)	Idle time @ 5% of the total man-hours, to be deducted from total number of man-hours.	

Direct labour hour rate will be –

(a) 7 paise per labour hour (b) 6 paise per labour hour

(c) 8 paise per labour hour (d) 9 paise per labour hour

6. Total number of workers 100

Idle time 5%

Working days per year 300

Factory overheads ₹11,400

No. of hours worked per day 8

Direct labour hour rate will be –

(a) 6 paise per hour (b) 4 paise per hour

(c) 8 paise per hour (d) 5 paise per hour

7. A Company processes production through Machining Department. Overhead rates are predetermined on the basis of machine hours.

Figures for the year based on which overhead rates were arrived at are furnished below:

	Machine Dept.
Direct labour cost (₹)	10,80,000
Factory overhead (₹)	24,00,000
Direct labour hours	7,20,000
Machine hours	6,00,000

Absorption rate will be –

(a) ₹ 4 per machine hour (b) 222.22% of wages

(c) ₹ 3.33 per machine hour (d) ₹ 3.33 per labour hour

8. A Company processes production through Finishing Department. Overhead rates are predetermined on the basis of labour cost.

Figures for the year based on which overhead rates were arrived at are furnished below:

	Finishing Dept.
Direct labour cost (₹)	8,00,000
Factory overhead (₹)	12,00,000
Direct labour hours	10,00,000
Machine hours	1,00,000

Absorption rate will be –

(a) ₹ 12 per machine hour (b) 150% of Wages

(c) ₹ 0.833 per macine hour (d) ₹ 1.20 per labour hour

9. A product whose direct material costs and direct labour costs are ₹ 200 and ₹ 100 would consume 3 hours 4 hours and 5 hours in department A, B and C respectively. Overheads absorption rate is – A: ₹ 4.5 per hour, B: ₹ 5 per hour and C: ₹ 10.5 per hour. The total cost of product is –

(a) ₹ 486 (b) ₹ 386

(c) ₹ 214 (d) ₹ 500

10. The budgeted fixed overheads amounted to ₹ 75,000. The budgeted and actual production amounted to 15,000 units and 20,000 units respectively. This means that there will be an –

(a) Under – absorption of ₹ 25,000 (b) Under – absorption of ₹ 18,750

(c) Over – absorption of ₹ 25,000 (d) Over –absorption of ₹ 18,750

11. Given below are the costing records of a factory:

Cost of machine	₹ 1,00,000
Scrap value	₹ 5,000
Freight and installation charges	₹ 5,000
Repairs and maintenance cost	₹ 1,000 per month
Wages of operator	₹ 5,000 per month
Estimated life	10 years

Factory operates 2,000 hours per year. Power: 10 units per hour @ 50 paise per unit. The machine hour rate will be –

(a) ₹ 27 per hour (b) ₹ 10.5 per hour

(c) ₹ 56 per hour (d) ₹ 46 per hour

12. What is the machine hour rate on the basis of following information –

Cost of machine: ₹ 18,000, Cost of installation: ₹ 2,000, Scrap value after 10 years: ₹ 2,000, Insurance premium for The machine: ₹ 120 per annum, Estimated repair: ₹ 200 per annum, Power consumed: 2 units per hour @ ₹ 150 per 100 units, Estimated working hours: 2,000 per annum.

(a) ₹ 4.06 (b) ₹ 10.46

(c) ₹ 13.26 (d) ₹ 14.56

13. Calculate machine hour rate from the following:

Cost of machine: ₹ 19,200, Estimated scrap value : ₹ 1,200, Average repair and maintenance charges per month : ₹ 150, Standing charges allocated to machine

per month : ₹ 50, Effective working life of machine : 10,000 hours Running time per month : 166 hours. Power used by machine 5 units per hour @ : 19 paise per unit. Choose the correct option –

(a) ₹ 4.00 (b) ₹ 3.95

(c) ₹ 5.95 (d) ₹ 3.50

14. Budgeted working hours are 2,592 based on 8 hours per day for 324 days. This includes 300 hours for plant maintenance and 92 hours for setting up of plant. If set-up time is to be taken as unproductive, and total overheads per machine per year is ₹ 2,72,116. Machine hour rate is: -

(a) ₹ 123.69 (b) ₹ 118.72

(c) ₹ 104.98 (d) ₹ 108.84

3 ACTIVITY BASED COSTING

THEORY BASED

1. Cost attribution to cost units on the basis of benefit received from indirect activities, such as ordering, setting-up, assuring quality is known as –
   (a) Allocation (b) Activity based costing
   (c) Always better control (d) Absorption

2. Activity Based Costing is –
   (a) a method of accounting for material, labour and overhead costs related to products
   (b) a method of allocating indirect costs
   (c) another name for benchmarking
   (d) a cost object

3. What is one aspect of activity based costing that differs from traditional costing?
   (a) Under activity based costing, allocation is based on the activities which generate the respective expenses
   (b) Under activity based costing, overhead costs are equally divided between products, jobs, or departments
   (c) Under activity based costing, direct and indirect costs are allocated based on a cause and effect relationship
   (d) Under activity based costing, allocation is based on the units produced which is a more accurate allocation of costs

4. Which of the following is not a benefit of activity based costing?
   (a) More accurate product costing (b) Enhanced control over overhead costs
   (c) Better management decisions (d) Less costly to use

5. In activity based costing, indirect costs are allocated to the products based on:
   (a) types of activities used by the product
   (b) the extent to which the activities are used
   (c) both (a) and (b)
   (d) none of the above

6. In activity based costing, an item for which cost measurement is required is called –
   (a) Cost driver (b) Cost object
   (c) Allocation (d) Cost pool

7. In activity based costing, costs are accumulated by:
   (a) Cost driver (b) Cost centre
   (c) Cost pool (d) Cost object

8. In an activity-based cost system, to what does 'pooling costs' refer?
   (a) Assigning various overhead costs to products
   (b) Collecting various types of costs that relate to an activity
   (c) Determining how much direct materials and labour should be allocated to a specific product or service
   (d) Comparing the actual performance of managers against the budget

9. In activity based costing, the allocation basis used for applying costs to services or products is called –
   (a) Cost driver (b) Cost object
   (c) Allocation (d) Applicator

10. The term cost driver refers to –
   (a) any activity that can be used to predict cost changes
   (b) the attempt to control expenditures at a reasonable level
   (c) the person who gathers and delivers cost data to the management accountant
   (d) a factor that causes a change in the cost of an activity

11. A cost driver is:
   (a) An example of work overheads
   (b) A joint cost which is common over cost centres
   (c) Any cost relating to conveyance
   (d) An action which generates costs

12. A cost driver:
   (a) Is a transaction that is a major factor behind cost
   (b) Is a reason behind the overhead cost
   (c) Is an allocation base (d) All of the above

13. Match the following

	COLUMN A		COLUMN B
1.	Machine set-up costs	(i)	Number of machine hours
2.	Machine operating costs	(ii)	Number of orders executed
3.	Materials handling and dispatch	(iii)	Number of set-ups

(a) (1) – (iii), (2) – (i), (3) – (ii) (b) (1) – (ii), (2) – (iii), (3) –(i)

(c) (1) – (iii), (2) – (i), (3) – (iii) (d) None of the above

14. Activity cost driver rate:

(a) $\frac{\text{Total cost of activity}}{\text{Activity cost driver}}$ (b) $\frac{\text{Total unit of level cost}}{\text{Activity cost driver}}$

(c) $\frac{\text{Total cost driver}}{\text{Activity cost driver}}$ (d) None of the above

15. Activity rates are determined by –

(a) dividing the actual cost for each activity pool by the actual activity base for that pool

(b) dividing the cost budgeted for each activity pool by the estimated activity base for that pool

(c) dividing the actual cost for each activity pool by the estimated activity base for that pool

(d) dividing the cost budgeted for each activity pool by the actual activity base in that pool

16. What is the proper sequence of events in an 'activity based costing' system –

(i) Calculation of overheads application rates.

(ii) Identification of cost drivers

(iii) Identification of cost pools

(iv) Assignment of overheads cost to products.

Select the correct answer from the options given below –

(a) (i), (iii), (iv), (ii)

(b) (ii), (iii), (i), (iv)

(c) (iii), (ii), (i), (iv)

(d) (ii), (iii), (iv), (i)

NUMERICAL BASED

1. Company B uses activity-based costing and has the following activity cost pools and estimated overhead cost for each pool:

Machine related	₹ 3,50,000
Handling material	₹ 2,40,000
Processing purchase orders	₹ 7,20,000
General factory	₹ 5,00,000.
Material movements are	24,000.

There were 36,000 orders

Total machine hours worked during the period is 10,000.

The amount of absorption rate under traditional absorption costing is:

(a) ₹ 10 (b) ₹ 20

(c) ₹ 30 (d) ₹ 181

2. Company X uses activity-based costing for its two products: Product B and Product D. One of the activity cost pools is parts administration. The total estimated overhead cost for that pool was ₹ 5,50,000 and the expected activity was 2,000 part types. If Product D requires 1,200 part types, the amount of overhead allocated to it would be:

(a) ₹ 2,75,000 (b) ₹ 3,00,000

(c) ₹ 3,30,000 (d) ₹ 3,45,000

3. A company manufactures two products using common handling facility. The total budgeted material handling cost is ₹ 1,20,000. The other details are:

Particulars	Product A	Product B
Number of units produced	60	60
Material moves per product line	10	30
Direct labour hours per unit	400	400

Under activity based costing system, the material handling costs to be allocated to Product A (per unit) would be:

(a) ₹ 2,000 (b) ₹ 500

(c) ₹ 2,500 (d) ₹ 3,500

4. Stores receiving cost is ₹ 1,20,000.

Product	P	Q	R
Customers' orders executed (in numbers)	1,250	1,000	1,500
Number of requisitions raised	40	30	50

The cost driver rate for the store receiving cost is:

(a) ₹ 1,000 (b) ₹ 32

(c) ₹ 31 (d) None of the above

5. Max Limited manufactures three products A, B and C which are similar in nature and are usually produced in production runs [batches] of 100 units. Setup costs is ₹ 1,80,000.

Product	A	B	C
Units produced and sold	15,000	12,000	18,000

The cost driver rate for the set-up cost is:

(a) ₹ 4 (b) ₹ 0.25

(c) ₹ 400 (d) ₹ 0.0025

4 COST ACCOUNTING SYSTEMS (INTEGRATED & NON – INTEGRATED ACCOUNTS)

THEORY BASED

1. When is the following entry passed in non-integrated system –

Store ledger A/c	Dr.	
To General ledger adjustment A/c		

(a) Material returned to supplier.
(b) Materials purchased
(c) Materials returned from production department
(d) Job completed

2. Under non-integrated accounts, if materials worth ₹ 5,000 are purchased for a special job, then which account will be debited:
(a) Special job account or Work in Process account
(b) Material Control account
(c) Cost Control account
(d) None of the above

3. If purchases of ₹ 500 are made for special job and directly received for job from the supplier, then which of the following entry will be correct if accounts are maintained under non-integrated system?

(a)	WIP Control A/c	Dr.	500	
	To Cost Ledger Control A/c			500
(b)	Store Ledger Control A/c	Dr.	500	
	To Cost Ledger Control A/c			500
(c)	Cost Ledger Control A/c	Dr.	500	
	To Stores Ledger Control A/c			500
(d)	Cost Ledger Control A/c	Dr.	500	
	To WIP Ledger Control A/c			500

4. When stores are issued for maintenance, the accounting entry is to _____ production overheads and _____ stores ledger control account.

(a)	debit; credit	(b)	credit; debit
(c)	deduct; add	(d)	divide; multiply

5. Abnormal losses in material are _____ .
   (a) Credited to Costing Profit & Loss A/c
   (b) Debited to Production Overhead Control A/c
   (c) Credited to Store Ledger Control A/c
   (d) Debited to Store Ledger Control A/c

6. _____ account is debited for charging of indirect factory wages of ₹ 58,000.
   (a) Work-in-progress ledger control A/c
   (b) Stores ledger control A/c
   (c) Work overhead control A/c
   (d) Cost ledger control A/c

7. For charging depreciation of machinery which of the following entry is passed if books are kept under non-integrated accounting system?
   (a) Depreciation A/c Dr.
   To Fixed Assets A/c
   (b) Depreciation A/c Dr.
   To General Ledger Control A/c
   (c) General Ledger Control A/c Dr.
   To Production Overhead Control A/c
   (d) Production Overhead Control A/c Dr.
   To General Ledger Control A/c

8. When production overhead is over absorbed, then in Production Overhead Control A/c _____.
   (a) There will be difference on debit side to Production Overhead Control A/c
   (b) There will be difference on credit side to Production Overhead Control A/c
   (c) Production Overhead Control A/c will get tally
   (d) None of the above

9. What journal entry is to be passed, at cost value, in non-integrated accounting system when finished goods are sold –
   (a) Debit General ledger adjustment account and Credit Costing profit and loss account
   (b) Debit General ledger adjustment account and Credit Finished goods stock ledger account

(c) Debit Cost of sales account and Credit Costing profit and loss account

(d) Debit Cost of sales account and Credit Finished goods ledger control account

10. If the finished product is transferred to stores, a credit entry is made in _____ and a corresponding debit entry is made in _____

(a) Finished Goods Control A/c, Cost of Sales A/c

(b) WIP Control A/c, Finished Goods Control A/c

(c) Finished Goods Control A/c, WIP Control A/c

(d) Cost of Sales A/c, Finished Goods Control A/c

11. _____ account is credited for transfer of finished goods worth ₹ 1,26,000 is manufactured.

(a) Work-in-progress ledger control A/c

(b) Cost Ledger control A/c

(c) Finished goods ledger control A/c

(d) Cost of Sales A/c

12. Which of the following statement is correct in relation to Cost Ledger Control Account?

(a) This account is made to complete double entry

(b) All items of expenditure are credited to this account

(c) Balance in this account represents the net total of all the balances of the impersonal accounts

(d) All of the above

13. _____ account is debited for charging of indirect office staff wages of ₹ 5,58,000.

(a) Work-in-progress ledger control A/c

(b) Selling and distribution overheads control A/c

(c) Work overhead control A/c

(d) Administration overhead control A/c

14. _____ account is debited for issue of indirect material of ₹ 2,38,000 to sales department.

(a) Work-in-progress ledger control A/c

(b) Selling and distribution overhead control A/c

(c) Work overhead control A/c

(d) Administration overhead control A/c

15. _____ account is credited for return of direct material of ₹ 8,000, from production department.
(a) Work-in-progress ledger control A/c (b) Stores ledger control A/c
(c) Work overhead control A/c (d) Cost ledger control A/c

16. Nominal Ledger Control A/c invariably has _____ .
(a) Debit balance (b) Credit balance
(c) No balance (d) None of the above

17. Costing Profit & Loss A/c does not record _____ .
(a) Sales value of the goods
(b) Balance of Production Overhead Control A/c
(c) Balance of Cost of Sales A/c
(d) Balance of Raw Material Control A/c

18. Which of the following account will be debited under the integrated accounting system when materials are purchased on credit –
(a) Purchases account (b) Stores ledger control account
(c) Cost ledger control account (d) None of the above

19. _____ account is credited for sale realization from debtors ₹ 32,00,000, under integral system.
(a) Work-in-progress ledger control A/c (b) Cost ledger control A/c
(c) Debtors A/c (d) Costing Profit and Loss A/c

20. Rent of the premises owned –
(a) May be included in Integrated accounts
(b) May be included in Non-Integrated accounts
(c) Cannot be included in Non-integrated accounts
(d) None of the above

21. Which of the following is not considered in financial account –
(a) Interest received on bank deposits
(b) Transfer fees received
(c) Profit made on sale of investments, fixed assets, etc.
(d) Salary of the proprietor

22. Which of the following items are purely financial incomes _____
    (a) Discount on issue of shares
    (b) Interest on bank loan
    (c) Transfer fees received
    (d) Notional interest on capital employed

23. Which of the following items is to be included both in cost accounts and financial accounts –
    (a) Salary of the proprietor
    (b) Rent on owned premises
    (c) Notional interest on capital employed
    (d) Salary to staff

24. If the closing stock figures are more in cost books as compared to those in financial books for reconciliation starting with the profit as per cost accounting, the difference due to stock valuation is –
    (a) Deducted from costing profit (b) Added to costing profit
    (c) Ignored (d) None of the above

25. Under-valuation of closing stock in cost accounts is _____ and under-valuation of opening stock in cost accounts is _____ while reconciling costing profits with financial profits.
    (a) deducted, added (b) added, deducted
    (c) multiplied, divided (d) divided, multiplied

NUMERICAL BASED

1. Balance as on 1st April 2023 ₹ 1,240
   Materials purchases ₹ 4,801
   Materials issued to:
   - Jobs ₹ 4,774
   - Maintenance works ₹ 412
   - Administration offices ₹ 34
   - Selling department ₹ 72

   What will be the closing balance of material control account?

   (a) ₹ 749 (b) ₹ 794
   (c) ₹ 855 (d) ₹ 889

2. Find out the material purchased during the year that will appear to Stores Ledger Control Account form the following data?

Stores Ledger Control Account (on 1st April, 2022)	₹ 9,450
Stores issued to production	₹ 45,370
Material purchased for direct issue to production	₹ 1,135
Stores issued for capital WIP	₹ 1,500
Stores issued for factory repairs	₹ 2,000
Stores lost due to fire in stores	₹ 150
Stores Ledger Control Account (on 31st March, 2023)	₹ 12,830

   (a) ₹ 52,400 (b) ₹ 51,265
   (c) ₹ 53,535 (d) ₹ 50,130

3. Finished Stock balance on 1.4.2022 = ₹ 30,780.
   Finished goods transferred to warehouse during the year = ₹ 2,02,900
   Sales = ₹ 2,56,000.
   The company's gross profit is 25% on cost.
   Finished Stock balance on 31.3.2023 =?

   (a) ₹ 28,880 (b) ₹ 83,880
   (c) ₹ 41,680 (d) ₹ 19,880

4. On 31st March, 2023, profit as per financial accounts was ₹ 50,000. A comparison of cost and financial accounts revealed the following:

Works overheads over-absorbed	₹ 8,500
Excess depreciation charged in cost accounts	₹ 3,000
Interest on investments included in financial accounts only	₹ 2,500

From the above information, the profit as per cost accounts will be –

(a) ₹ 47,000 (b) ₹ 36,000

(c) ₹ 41,000 (d) ₹ 53,000

5. The financial records of a company showed a net profit of ₹ 6,70,000 for the period ended 31st March, 2015. On further examination of cost and financial records, the following facts were discovered: Works overheads under-recovered in cost ₹ 16,240, Office overheads over-recorded in cost ₹ 4,000, Interest on investments not included in cost ₹ 16,000

The profit as per cost records is –

(a) ₹ 6,66,250 (b) ₹ 6,66,240

(c) ₹ 6,67,270 (d) ₹ 6,68,250

6. The profit as per financial accounts are ₹ 84,700. The values of opening and closing stock as shown in cost accounts and financial accounts are as under:

Details	Financial Accounts ₹	Cost Accounts ₹
Raw materials		
Opening	54,000	52,000
Closing	60,000	59,400
Work – in – progress		
Opening	26,000	29,600
Closing	20,000	17,500

From the above information, the profit as per costing records is –

(a) ₹ 83,400 (b) ₹ 82,000

(c) ₹ 80,000 (d) ₹ 79,400

7. During the year ended 31st March, 2023, the profit of the company is ₹ 63,450 as per financial records. The following details are given:

Opening stock overstated in cost accounts	₹ 8,500
Closing stock understated in cost accounts	₹ 7,600
Factory overheads under recovered in cost accounts	₹ 4,500

The profit as per cost accounts will be –

(a) ₹ 69,950 (b) ₹ 65,950

(c) ₹ 51,850 (d) ₹ 56,950

8. When costing loss is ₹ 48,000, work overhead under-absorbed being ₹ 2,000, the loss as per financial accounts should be

(a) ₹ 50,000 (b) ₹ 46,000

(c) ₹ 2,000 (d) None of the above.

5 PROCESS & OPERATION COSTING

THEORY BASED

1. Clean Labs develops film using a three-step process that moves progressively through three departments. Currently direct materials, direct labour and overheads are accumulated by departments.
The cost accumulation system that best describes the system that Clean Labs is using is:
(a) Job-order Costing (b) Activity-based Costing
(c) Service Costing (d) Process Costing

2. In process, conversion cost means –
(a) Direct materials, direct labour, direct expenses
(b) Direct labour, direct expenses, indirect material, indirect labour, indirect expenses
(c) Prime cost plus factory overheads
(d) All costs up to the product reaching the consumer, less direct material costs

3. The spoilage that occurs due to inefficient operating conditions and is ordinarily controllable is called:
(a) Normal spoilage (b) Abnormal spoilage
(c) Normal defectives (d) None of these

4. The type of loss that should not be allowed to affect the cost of good units is:
(a) Normal loss (b) Abnormal loss
(c) Standard loss (d) None of these

5. In process costing, abnormal gain would arise if –
(a) Actual units lost during the process were more than the normal loss
(b) Closing stock at end of the period was higher than opening stock
(c) Actual units lost during the process were less than the normal loss
(d) Estimate of cost per unit was below the actual cost per unit of output

6. Process Account is credited by _____ .
   (a) Cost of normal loss (b) Scrap value of normal loss
   (c) Cost of abnormal loss (d) Both (b) and (c)

7. The cost of normal process loss is:
   (a) Absorbed by good units produced
   (b) Debited to Costing P&L account
   (c) Absorbed by good units produced and amount realized by the sale of loss units should be debited to process account
   (d) Debited to Costing P&L account amount realized by the sale of loss units should be credited to process account

8. Balance in abnormal loss account is transferred to –
   (a) Process account
   (b) Costing profit and loss account
   (c) Partly to the process account and partly to costing profit and loss account
   (d) None of the above

9. When an abnormal gain in a process occurs, the accounting entry is to be made:
   (a) Process account debit and Abnormal gain account credit
   (b) Abnormal gain account debit and P & L account credit
   (c) Abnormal gain account debit and Normal wastage account credit
   (d) Normal wastage account debit and abnormal gain account credit

10. In process costing, if an abnormal gain arises, the process account is generally:
   (a) Debited with the scrap value of the abnormal gain units
   (b) Debited with the full production cost of the abnormal gain units
   (c) Debited with the production cost minus scrap value of the abnormal gain units
   (d) Credited with the full production cost of the abnormal gain units

11. The two main methods of calculating equivalent production are –
   (a) FIFO method and average cost method
   (b) LIFO method and standard cost method
   (c) LIFO method and market price method
   (d) FIFO method and market price method

12. _____ is valued in terms of equivalent production units.
    (a) Stock of raw material (b) Stock of work-in-progress
    (c) Stock of finished goods (d) All the above three stocks

13. Under Weighted Average Method –
    (a) The cost to complete opening work-in-progress is ignored
    (b) The cost to complete opening work-in-progress and other completed units are calculated separately
    (c) The cost of opening work-in-progress and cost of the current period are added and the aggregate cost is then divided by the output in terms of completed units
    (d) None of these

14. When average method is used in process costing, the opening work-in-progress costs are:
    (a) Subtracted from the new costs (b) Added to the new costs
    (c) Kept separate from the new costs (d) Ignored

15. The situation of unrealized profit in the closing stock arises in the case of:
    (a) Process losses (b) Equivalent production
    (c) By-products and joint products (d) Inter process profits

NUMERICAL BASED

1. An input of 60,000 kgs. of material is introduced into the process and the expected loss is 5%. If the actual output from the process is 55,000 kgs., the abnormal loss is –
    (a) 3,000 kgs. (b) 1,500 kgs.
    (c) 2,000 kgs. (d) 2,750 kgs.

2. The input in a process is 8,600 units and normal loss is considered at 5% of input. If the actual output is 8,200 units, then there will be:
    (a) Abnormal loss of 30 units
    (b) Abnormal loss of 400 units
    (c) Abnormal gain of 400 units
    (d) Abnormal gain of 30 units

3. In Ruby Ltd. 10,000 units of raw material were introduced in Process-I. The actual output and normal loss of respective processes are as follows:

Process	Output (units)	Normal loss on input units
I	9,000	10%
II	6,800	20%
III	5,400	25%

Abnormal gain in Process III is –

(a) 400 units (b) 500 units

(c) 450 units (d) 300 units

4. In Process A, 100 units of raw material were introduced at a cost of ₹ 1,000. Manufacturing wages were ₹ 500 and factory overheads ₹ 102. Out of the units introduced, 10% are normally lost during manufacture and they have scrap value of ₹ 3 each. The output of Process A was 75 units. The value of abnormal loss in Process A is –

(a) ₹ 45 (b) ₹ 168

(c) ₹ 262 (d) ₹ 270

5. The following information is given:

Input of raw material @ ₹ 50 per unit	1,000 units
Direct Material	₹ 15,000
Direct Wages	₹ 9,000
Production overheads	₹ 12,000
Actual output transferred to next process	900 units
Normal Loss	5%
Value of Scrap	₹ 20 per unit

The amount of abnormal loss would be transferred to costing profit and loss account (calculation to the nearest rupee):

(a) ₹ 3,474 (b) ₹ 4,474

(c) ₹ 4,300 (d) ₹ 4,250

6. Following information is available:

Input of raw material	1,000 units @ ₹ 25 per unit
Direct material	₹ 7,500
Direct wages	₹ 4,500
Production overheads	₹ 6,000
Actual output transferred to next process	900 units
Normal loss	5%
Value of scrap	₹ 10 per unit

The cost of output transferred to next process will be –

(a) ₹ 38,700 (b) ₹ 40,263

(c) ₹ 38,250 (d) ₹ 43,500

7. A product is completed in three consecutive processes. Details of normal and abnormal losses are as follows:

Process	I	II	III
Normal loss units	250	470	215
Abnormal loss units	50	–	35
Abnormal loss value (₹)	300	–	770
Abnormal gain units	–	70	–
Abnormal gain value (₹)	–	840	–

Realisable scrap value per unit of process I, II and III are ₹ 1, ₹ 5 and ₹ 6 respectively. Indicate from out of the following, what will be the abnormal gain to be transferred to Costing P & L Account?

(a) ₹ 490 (b) ₹ 810

(c) ₹ 890 (d) ₹ 840

8. Following information is available as regards Process I:

Units introduced	14,100 units at ₹ 42,300
Additional material	₹ 1,560
Direct wages	₹ 3,500
Production overheads	₹ 5,250
Scrap value of normal loss	₹ 2 per unit

The output of Process I was transferred to Process II at ₹ 4 per unit. The percentage of wastage in Process I will be:

(a) 13.44% (b) 12.95%

(c) 14.83% (d) 11.88%

9. In a process 8,000 units are introduced during a period. 5% of input is normal loss. Closing work in progress 60% complete is 1,000 units. 6,600 completed units are transferred to next process. Equivalent production for the period is:

(a) 9,000 units (b) 7,440 units
(c) 5,400 units (d) 7,200 units

10. Input material : 10,000 units
Normal loss of total input : 8%
Closing work-in-progress : 900 units
Degree of completion for closing stock of work-in-progress and abnormal loss:
Material - 100%
Labour - 70%
Output transferred to next process 7,900 units.
From the above information, equivalent production units for material and labour are:

(a) 9,200 and 8,930 respectively (b) 9,200 and 8,810 respectively
(c) 8,800 and 8,930 respectively (d) 8,800 and 8,810 respectively

11. During the month July, 2023, 15,000 units were completed in process I and transferred to the process II. Opening stock as on 1st July, 2023 was 5,000 units and closing stock as on 31st July, 2023 was 10,000 units.
Degree of completion for both opening and closing stock:
Material 100%
Labour and overhead 40%
Equivalent production units for labour and overheads using FIFO method are:

(a) 18,000 units (b) 17,000 units
(c) 20,000 units (d) 25,000 units

12. In process A, 20,000 units are introduced during a particular month. The normal loss is estimated to be 4% of the input. At the end of the month 2,400 units were lying as incomplete. The stagewise completion of the inventory was given as under:
Materials : 80% complete, Labour : 60% complete and Overheads : 50% complete.
16,600 units were transferred to finished stores. Equivalent units in respect of material =?

(a) 20,000 units (b) 18,000 units
(c) 18,240 units (d) 18,720 units

Consider the following details to answer questions 13 and 14:

Opening WIP	1,000 units
Cost incurred on opening WIP	₹ 1,10,000
Cost incurred in the process	₹ 19,30,000
Units introduced during the month	10,000 units
Transferred to next process	9,000 units
Closing WIP (75% complete)	800 units
Normal loss	10% of total input
Scrap value	₹ 10 per unit

13. Equivalent units for the month will be:

(a) 10,000 units (b) 9,700 units

(c) 9,600 units (d) 9,800 units

14. Cost per equivalent production unit is:

(a) ₹ 210.31 (b) ₹ 198.97

(c) ₹ 209.18 (d) ₹ 211.35

15. In a company adopting process costing, the output of a process is transferred to next process by adding profit. In a particular period, the total cost and profit of the process amounted to ₹ 70,500 and ₹ 9,500 respectively. The total value of closing stock was ₹ 6,000. Then the value of unrealized profit in closing stock of the process is:

(a) ₹ 712 (b) ₹ 768

(c) ₹ 816 (d) None of the above

6 JOINT PRODUCTS AND BY PRODUCTS

THEORY BASED

1. Individual products, each of a significant sales value, produced simultaneously from the identical raw materials are called:
   (a) Joint Product (b) Common Product
   (c) By-Product (d) Main Product

2. Gasoline, diesel, paraffin and asphalt which are obtained from Crude Oil are:
   (a) Joint Products (b) Co-Products
   (c) By-Products (d) Unique Products

3. Which of the following is used as a method for apportioning total joint cost over the joint products?
   (a) Average unit cost method (b) Contribution margin method
   (c) Market value method (d) All of these

4. _____ relate to two or more products from a common production process or element-material, labour and overhead or any combination thereof or so locked together that one cannot be produced without producing the other.
   (a) Sunk cost (b) Imputed cost
   (c) Joint cost (d) Replacement cost

5. The stage of production at which separate products are identified is known as –
   (a) Split-off point (b) Break-even point
   (c) Re-order point (d) Cost indifference point

6. _____ costs incurred upto the point where individual products can be identified are called
   (a) Mixed (b) Joint
   (c) Separate (d) None of the above

7. Costs that are incurred after the split-off point of joint products in a production process are referred to as:
   (a) Joint costs (b) Post Separation costs
   (c) By-product costs (d) Manufacturing costs

8. The main purpose of accounting of joint products and by-products is to –
   (a) determine the profit/loss on each product line
   (b) determine the selling price
   (c) comply with the statutory requirements
   (d) identify the cost and load it on the main product

9. Method of apportioning joint costs on the basis of output of each joint product is:
   (a) Sales value at split off point method (b) Average cost method
   (c) Physical unit method (d) Contribution method

10. Under net realizable value method of apportioning joint costs to joint products, the further processing cost is:
   (a) Added to joint cost (b) Deducted from joint cost
   (c) Deducted from sales value (d) Ignored

11. For the purpose of allocating joint costs to joint products, the sales price at point of sale, reduced by cost to complete after split-off, is assumed to be equal to the:
   (a) Joint costs (b) Sale price less a normal profit margin
   (c) Net sales value at split off (d) Total Costs

12. _____are defined as "any saleable or usable value incidentally produced in addition to the main product."
   (a) By-products (b) Joint products
   (c) Common products (d) Secondary products

13. An outcome of a production process considered as relatively less important as compared to the main product is called –
   (a) By-product (b) Co-product
   (c) Joint product (d) Core product

14. In sugar manufacturing industries, molasses is also produced along with sugar. Molasses may be of smaller value as compared with the value of sugar and is known as –

(a) By-product (b) Common product
(c) Joint product (d) None of these

15. When a by-product does not have any realizable value, the cost of by-product is:

(a) Transferred to Costing Profit & Loss A/c
(b) By-product cost is borne by the good units
(c) By-product cost is ignored
(d) By-product cost is determined taking value of similar goods

NUMERICAL BASED

1. A company produces three joint products A, B and C. The company has chosen 'physical quantity method'. Up to the point of split off, the total production of A, B and C is 80,000 kgs. The quantity of A, B and C produced is 25,000 kgs., 35,000 kgs. and 20,000 kgs. respectively. Total joint cost is ₹ 5,00,000. Joint cost allocated to product 'A' is -

(a) ₹ 1,25,000 (b) ₹ 2,18,750
(c) ₹ 1,56,250 (d) ₹ 1,66,666

Consider the following details to answer questions 2 and 3

A company manufactures two products, Product P and Product Q, out of a joint process. The joint costs incurred are ₹ 6,30,000 that generated 18,000 kgs. of P and 12,000 kgs. of Q. Further processing costs beyond split-off point are ₹ 14 per unit for Product P and ₹ 9 per unit for Product Q. After further processing Product P sells for ₹ 24 per unit and Product Q sells for ₹ 39 per unit.

2. The amount of joint cost allocated to Product P using physical-quantity basis would be:

(a) ₹ 3,15,000 (b) ₹ 3,78,000
(c) ₹ 2,32,000 (d) ₹ 3,02,400

3. The amount of joint cost allocated to Product Q using net realizable value method would be:

(a) ₹ 2,10,000 (b) ₹ 3,78,000
(c) ₹ 4,20,000 (d) ₹ 3,02,400

4. A company's plant processes 6,750 units of a raw material at a cost of ₹ 80 per unit to produce two products X and Y.

The process yield is as under:

Product X	80%
Product Y	12%
Process loss	8%

Processing cost is ₹ 2,25,000 of which labour cost is accounted for 66%. Labour is chargeable to products X and Y in the ratio of 100 : 80. Joint cost apportioned to Product Y will be:

(a) ₹ 99,783 (b) ₹ 1,46,413

(c) ₹ 80,413 (d) None of these

5. JK Ltd. manufactures two products from a joint manufacturing process. The two products developed are Product J and Product K. A standard production run incurs joint costs of ₹ 1,00,000 and results in 6,000 units of J and 9,000 units of K. Each unit of J sells for ₹ 200 per unit and each unit of K sells for ₹ 450 per unit. Assuming no further processing work is done after the split-off point, the amount of joint cost allocated to Product K using sales value at split off would be:

(a) ₹ 60,000 (b) ₹ 77,142

(c) ₹ 50,000 (d) ₹ 22,857

6. A company buys a particular raw material and processes it in Department I which splits-off into products X, Y and Z. Product X is sold at the split-off point, with no further processing. Products Y and Z require further processing before they can be sold. Product Y is processed in Department II and Product Z is processed in Department III. Following data is available for 2022-23:

Department	Total Cost (₹)
I	5,98,000
II	6,60,000
III	11,00,000

Details for the three products are as follows:

	Product		
Particulars	X	Y	Z
Sales (units)	10,000	15,000	22,500
Closing stock (units)	5,000	-	7,500
Sale price per unit (₹)	30	64	50

If the company uses Net Realizable Value method for allocating joint costs, the net realizable values of the three products will be:

(a) ₹ 3,00,000, ₹ 9,60,000 and ₹ 11,25,000

(b) ₹ 3,00,000, ₹ 3,00,000 and ₹ 25,000

(c) ₹ 4,50,000, ₹ 3,00,000 and ₹ 4,00,000

(d) None of the above

7. A company produces two joint products, P and V. In a year, further processing costs beyond split-off point spent were ₹ 8,000 and ₹ 12,000 for 800 units of P and 400 units of V respectively. P sells at ₹ 25 and V sells at ₹ 50 per unit. A sum of ₹ 9,000 of joint costs were allocated to Product P based on net realizable value method. What were the total joint costs in a year?

(a) ₹ 15,000 (b) ₹ 22,500

(c) ₹ 27,000 (d) ₹ 36,000

8. In an oil mill, four products emerge from a refining process. The joint cost of purchasing the crude oil and processing is ₹ 40,000. The other details as under:

Product	Sales at split-off point (₹)	Further processing costs (₹)	Sales after further processing (₹)
A	20,000	80,000	1,20,000
B	12,000	32,000	40,000
C	28,000	36,000	48,000
D	20,000	-	-

Which of the products should be further processed for maximising profits?

(a) Only Product A (b) Product B and C

(c) All the products (d) None of the products

9. A company produces three joint products P, Q and R. The products are processed further. Pre-separation costs are apportioned on the basis of weight of output of each joint product. The following data are provided for the month of May, 2023

Cost incurred up to separation point: ₹ 10,000

Particulars	Product		
	P	Q	R
Output (in kgs.)	100	70	80
	₹	₹	₹
Costs incurred after separation point	2,000	1,200	800
Sale price per kg.			
After further processing	50	80	60
At pre-separation point (estimated)	25	70	45

Which is the best course of action for the company?

(a) All the three products should be further processed

(b) Product P and Q should be further processed and Product R should be sold at split-off point

(c) Product P and R should be further processed and Product Q should be sold at split-off point

(d) Product Q should be further processed and Product P and R should be sold at split-off point

10. A factory producing article A also produces a by-product B which is further processed into finished product, the joint cost of manufacture is ₹ 10,000. The subsequent cost incurred on A is ₹ 5,000 and on B is ₹ 3,000.

Selling Prices are: A – ₹ 16,000
B – ₹ 8,000

Estimated profit on selling prices is 25% for A and 20% for B. Assume that selling expenses are in proportion of sales prices. Joint costs apportioned to A and B will be:

(a) ₹ 5,000 and ₹ 5,000 (b) ₹ 6,800 and ₹ 3,200

(c) ₹ 6,733 and ₹ 3,267 (d) None of these

11. Two products P and Q are obtained in crude form and require further processing at a cost of ₹ 5 for P and ₹ 4 for Q per unit before sale. Assuming a net margin of 25% on cost, their sale prices are fixed at ₹ 13.75 and ₹ 8.75 per unit respectively. During the period, the joint cost was ₹ 88,000 and the output were P – 8,000 units and Q – 6,000 units. Joint cost per unit will be:

(a) ₹ 8 and ₹ 4 (b) ₹ 6 and ₹ 3

(c) ₹ 7.33 and ₹ 4.89 (d) None of these

12. A manufacturing concern produced two joint products A and B whose sales values were ₹ 1,52,000 and ₹ 1,68,000 respectively and selling expenses were ₹ 20,000 and ₹ 80,000 respectively. The joint cost was ₹ 1,67,600. If the joint cost was apportioned on cost of sales basis, it is:

(a) ₹ 33,520 and ₹ 1,34,080 (b) ₹ 79,610 and ₹ 87,990

(c) ₹ 1,00,560 and ₹ 67,040 (d) ₹ 83,800 and ₹ 83,800

13. In a manufacturing concern, the joint expenses of products X, Y and Z are ₹ 25,000. Subsequent expenses of products X, Y and Z are ₹ 5,900, ₹ 4,000 and ₹ 4,450 respectively. Sales values are : X ₹ 30,000, Y ₹ 20,000 and Z ₹ 15,000. Estimated profit on sales are : X 40%, Y 30% and Z 25%. What is the amount of share in the joint expenses of product X, Y and Z respectively if the selling expenses are 6% on sales value?

(a) ₹ 12,100, ₹ 10,000 and ₹ 6,800

(b) ₹ 10,300, ₹ 8,800 and ₹ 5,900

(c) ₹ 11,538, ₹ 7,692 and ₹ 5,769

(d) ₹ 10,405, ₹ 8,092 and ₹ 6,503

14. A factory produces two products, A and B from a single joint process. The joint manufacturing costs during a particular month are:

Direct Material	₹ 30,000
Direct Labour	₹ 9,600
Variable Overheads	₹ 12,000
Fixed Overheads	₹ 32,000

Sales: A – 100 units @ ₹ 600 per unit

B – 120 units @ ₹ 200 per unit

Joint costs apportioned on the basis of Contribution Margin Method to each product will be:

(a) ₹ 38,000 and ₹ 45,600 (b) ₹ 41,800 and ₹ 41,800

(c) ₹ 71,745 and ₹ 11,855 (d) ₹ 55,455 and ₹ 28,145

15. JK Ltd. produces Product J and gets a by-product K out of a joint process. The net realizable value of the by-product is used to reduce the joint production costs before the joint cost are allocated to the main product. The company incurred joint production costs of ₹ 4,00,000. The main product J is not marketable at split off point. Thus, it has to be further processed. Details of company's operation are as under:

Particulars	Product J	By-product K
Production (units)	10,000	200
Sale price per kg.	₹ 45	₹ 5
Further processing cost	₹ 1,01,000	-

If the company wants to earn profit of ₹ 1,00,000, then what should be selling price per kg. of Product J:

(a) ₹ 60.10 per kg. (b) ₹ 50 per kg.

(c) ₹ 60 per kg. (d) ₹ 45 per kg.

7 SERVICE OR OPERATING COSTING

THEORY BASED

1. Service costing is applicable to:
   (a) Hotels & Lodges (b) Power generation
   (c) Transport undertaking (d) All of the above

2. The method of costing used both in a cinema and a hospital is _____ costing.
   (a) service (b) marginal
   (c) job (d) process

3. Service costing is not used in the which one of the following:
   (a) electricity (b) transport
   (c) hospitals (d) electronics

4. Which of the following 'Cost Unit' is not used by the organisation engaged in providing services?
   (a) Per Metre (b) Tonne-Km
   (c) Passenger-Km (d) Kilowatt-Hour

5. In transport service costing, costs are classified as:
   (a) Standing charges, running charges & maintenance costs
   (b) Fixed cost, normal cost & standard cost
   (c) Variable cost, fixed cost & marginal cost
   (d) Standard cost, marginal cost & fixed cost

6. Cost of diesel and lubricants is:
   (a) Operating Cost (b) Fixed charges
   (c) Semi-variable cost (d) None of the above

7. Which of the following is not an item of standing charges in transport costing?
   (a) Garage rent (b) Road license and other taxes
   (c) Repairs and maintenance (d) Supervisor's salary

8. Depreciation is treated as fixed cost if it is related to –

(a) Activity level (b) Related with machine hours

(c) Efflux of time (d) None of the above

9. Absolute tonne-km. is an example of:

(a) Composite unit in power sector (b) Composite unit for oil and natural gas

(c) Composite unit for bus operation (d) Composite unit of transport sector

10. Cost Unit of Hospital Industry is:

(a) Tonne (b) Student per year

(c) Kilowatt Hour (d) Patient Day

11. Composite Unit of Hotel Industry is:

(a) Per room (b) Per bed

(c) Per day (d) Per room-day

12. Jobs undertaken by Information Technology and Information Technology Enabled Services organisations are considered as:

(a) Project (b) Batch work

(c) Both (a) & (b) (d) None of these

13. Cost units used in power sector is called:

(a) Number of hours (b) Kilo meter (KM)

(c) Number of electric points (d) Kilowatt-hour (KWH)

14. BOT approach means:

(a) Buy, Operate and Transfer (b) Build, Operate and Trash

(c) Build, Own and Trash (d) Build, Operate and Transfer

15. Pre-product development activities in insurance companies, include:

(a) Processing of claim (b) Selling of policy

(c) Provision of conditions (d) Policy application processing

16. Post-product development activities in insurance companies, include:

(a) Selling of policy (b) Processing of claim

(c) Both (a) and (b) (d) Neither (a) or (b)

NUMERICAL BASED

1. A transport company is running 4 buses between two cities, which are 60 kms. apart. Seating capacity of each bus is 45 passengers. Actual passengers carried by each bus is 80% of seating capacity. All buses run on all days of the month. Each bus makes one round trip per day. Assuming 30 days in a month, the passenger-kms. are –

   (a) 5,62,500 (b) 5,18,400
   (c) 6,40,000 (d) 2,59,200

2. From the following information, the total passenger kilometers for the month of May, 2023 will be:

Number of Buses	4
Round trips made by each bus per day	5
Distance of route	60 km
Capacity of bus	45 passengers
Normal passenger travelling	90% of capacity
Days operated in the month	All days

   (a) 15,06,600 Passenger-kms.
   (b) 30,13,200 Passenger-kms.
   (c) 7,29,000 Passenger-kms.
   (d) 14,58,000 Passenger-kms.

3. Prakash automobiles distributes its goods to a regional dealer using a single lorry. The dealer's premises are 40 kilometers away by road. The lorry has a capacity of 10 tonnes. The lorry makes the journey twice a day fully loaded on the outward journeys and empty on return journeys. The lorry operates on a five-day week. Total effective tonne-kms. for four week period will be :

   (a) 8,000 (b) 4,000
   (c) 32,000 (d) 16,000

4. Vipul travels provided mini buses to an IT company for carrying its employees from home to office and dropping back after office hours. It runs a fleet of 8 mini buses for this purpose. The buses are parked in a garage adjoining the company's premises. Company is operating in two shifts (one shift in the morning and one shift in the

afternoon). The distance travelled by each mini bus one way is 30 kms. The company works for 20 days in a month. The total distance travelled in a year by each bus will be:

(a) 28,800 kms. (b) 4,800 kms.
(c) 57,600 kms. (d) 2,400 kms.

5. Total passenger-km. run by ABC Ltd. was 21,60,000 for the year between town Z and town A. The bus made 3 round trips per day. Seating capacity of the bus was 50 passengers and average daily occupancy was 80% and the bus runs on an average 25 days in a month. Calculate the distance between towns Z and A.

(a) 30 kms. (b) 25 kms.
(c) 45 kms. (d) 40 kms.

6. A transport service company incurred a total operating cost of ₹ 1,40,625 in June, 2023 to operate five buses between two places which are 50 kms. apart. Each bus is having a seating capacity of 50 passengers and all buses run on all days with one round trip only. If the operating cost per passenger-km., is ₹ 0.25, then the capacity occupied in each bus is:

(a) 60% (b) 75%
(c) 80% (d) 100%

7. A hotel has 200 rooms accommodation. The normal occupancy in summer is 90% and winter 40%. The period of summer and winter is taken 8 months and 4 months respectively. Assume 30 days in each month. The total rooms occupancy in a year will be –

(a) 38,400 room-days (b) 52,800 room-days
(c) 9,600 room-days (d) 72,000 room-days

8. Calculate the cost to be charged per day per room for a multinational hotel company using the following information:

Total Rooms in hotel	100
Occupied in summer	80%
Occupied in winter	30%

Period of summer and winter six months each and normal days in a month are 30.

Total cost incurred ₹ 8,88,800

(a) ₹ 24.68 (b) ₹ 44.89
(c) ₹ 34.68 (d) ₹ 25.68

9. A hotel has a capacity of 100 single bed-rooms and 40 double bed-rooms. The average occupancy for single bed-room is 80% and for double bed-rooms is 60% throughout the year of 365 days. The rent for double bed-room has been fixed 1.50 times of rent of single bed-room. Total operational cost of the year is ₹1,96,45,760 and hotel wants to earn profit of 20% on chargeable price. Chargeable room rent per day for single and double bed-room will be:
   (a) ₹ 556.80 and ₹ 835.20
   (b) ₹ 580 and ₹ 870
   (c) ₹ 646.90 and ₹ 970.40
   (d) ₹ 517.50 and ₹ 776.30

Consider the following details to answer questions 10 and 11

A hotel has a capacity of 100 single rooms and 20 double rooms. The average occupancy of both single and double rooms is expected to be 80% throughout the year of 365 days. The rent for double room has been fixed at 125% of a single room. The costs are as under:
Variable costs: Single room ₹ 220 each per day; Double rooms ₹ 350 each per day
Fixed costs: Single room ₹ 120 each per day; Double rooms ₹ 250 each per day

10. If the hotel wants to earn profit of 20% on room rent, the total room rent for the year will be:
   (a) ₹ 2,09,87,500 (b) ₹ 1,61,18,400
   (c) ₹ 1,67,90,000 (d) None of these

11. Rent chargeable for single and double room per day will be:
   (a) ₹ 575 and ₹ 718.75 (b) ₹ 580 and ₹ 870
   (c) ₹ 646.90 and ₹ 970.40 (d) ₹ 460 and ₹ 575

12. A group of Health care services has decided to establish an Intensive Care Unit (ICU). The unit's capacity shall be of 50 beds and 10 more beds, if required, can be added. It was reported that for 200 days in a year 50 beds were occupied, for 105 days 30 beds were occupied and for 60 days 20 beds were occupied. The hospital hired 250 beds accommodate the flow of patients. However, this never exceeded the normal capacity of 50 beds on any day. The total bed-days for the year will be:
   (a) 14,350 (b) 14,600
   (c) 26,850 (d) None of these

Consider the following details to answer questions 13 and 14

SLS infrastructure built and operate 110 kms. highway on the basis of Built-Operate-Transfer (BOT) for a period of 25 years. A traffic assessment has been carried out to estimate the traffic flow per day shows the following figures:

Sl. No.	Type of Vehicle	Daily traffic volume
1.	Two wheelers	44,500
2.	Cars and SUVs	3,450
3.	Bus and LCV	1,800
4.	Heavy commercial vehicles	816

The estimated cost of the project is ₹ 1,15,615.25 Lakhs.

On the basis of the vehicle specifications (i.e. weight, size time saving etc.), the following weights has been assigned to the passing vehicles:

Sl. No.	Type of Vehicle	
1.	Two wheelers	5%
2.	Cars and SUVs	20%
3.	Bus and LCV	30%
4.	Heavy commercial vehicles	45%

13. The total project cost per day of concession period will be:

(a) ₹ 3,16,75,000 (b) ₹ 12,67,000

(c) ₹ 12,85,000 (d) None of these

14. If the company wants to earn a profit of 15% on total cost, the toll fee to be charged for per vehicle of each type will be:

	Two wheelers	Cars and SUVs	Bus and LCV	Heavy commercial vehicles
(a)	₹ 1.64	₹ 84.47	₹ 242.84	₹ 803.52
(b)	₹ 28.81	₹ 28.81	₹ 28.81	₹ 28.81
(c)	₹ 19.06	₹ 76.24	₹ 114.36	₹ 171.54
(d)	None of these			

8 MATERIAL COST CONTROL, STOCK VALUATION AND STOCK CONTROL

THEORY BASED

1. Direct material can be classified as –
   (a) Fixed cost (b) Variable cost
   (c) Semi-variable cost (d) None of these

2. _____ is the optimum order quantity of material to be ordered every time an order is placed.
   (a) Standard Ordered Quantity (SOQ) (b) Special Order Quantity (SOQ)
   (c) Economic Order Quantity (EOQ) (d) None of these

3. At the economic ordering quantity level, the following is true:
   (a) The ordering cost is minimum
   (b) The carrying cost is minimum
   (c) The total ordering cost is equal to the total carrying cost
   (d) The purchase price is minimum

4. A store ledger is a record of receipts, issues and closing balances of material by entering –
   (a) Quantity only (b) Quantity and value
   (c) Value only (d) None of these

5. Under which of the following methods, the materials in stock are valued at the price of the latest purchases:
   (a) Base stock method (b) First in first out method
   (c) Last in first out method (d) Highest in first out method

6. During the time of inflation, the method of pricing material issues which leads to a lower material costs for a job is:
   (a) FIFO (b) LIFO
   (c) HIFO (d) Standard Pricing Method

7. In case of rising prices, FIFO method will provide –
   (a) Lowest value of closing stock and profit
   (b) Highest value of closing stock and profit
   (c) Highest value of closing stock but lowest value of profit
   (d) Lowest value of closing stock but highest value of profit

8. In a situation of rising prices, profit and tax liability would be lower under _____ method than under _____ method of material issue pricing.
   (a) FIFO; LIFO (b) LIFO; FIFO
   (c) LIFO; Average (d) FIFO; Average.

9. Issue of materials during a period of time are priced at the latest purchase cost under:
   (a) LIFO (b) FIFO
   (c) Simple average (d) Weighted average

10. When prices fluctuate widely, which of the following method will even out the effect of fluctuations?
   (a) Weighted average (b) FIFO
   (c) LIFO (d) Simple average

11. Differences in stock of material due to _____ are written off to Profit and Loss Account and do not form part of manufacturing cost.
   (a) Normal causes (b) Abnormal causes
   (c) Unavoidable causes (d) All of the above

12. ABC analysis is
   (a) a system of profit planning (b) a technique of financial analysis
   (c) a technique of inventory control (d) a technique of profit determination

13. _____ is a value based system of inventory control, in which materials are analysed according to their value so that costly and more valuable materials are given greater attention.
   (a) MAX-MIN plan (b) Review of slow and non-moving items
   (c) ABC Analysis (d) Order cycling system

14. Which one of the following statements is true in ABC classification of materials–
    (a) 'C' items of material have moderate % of cost and high % of quantity
    (b) 'A' items of material have high % of cost and low % of quantity
    (c) 'A' items of material have high % of cost and high % of quantity
    (d) 'B' items of material have moderate % of cost and low % of quantity

15. In ABC analysis, 'C' class items require –
    (a) tight control (b) loose control
    (c) moderate control (d) high safety stock

NUMERICAL BASED

1. A firm requires 12,800 units of a certain component which it buys @ ₹ 60 each. The cost of placing an order and following it up is ₹ 150 and annual storage charges work out to 10% of the cost of items. Number of units to be ordered to get maximum benefit to the firm are –
    (a) 1,000 units (b) 900 units
    (c) 800 units (d) 320 units

2. A company requires 1,500 units of an item per month. The cost of each unit is ₹30. The cost of placing an order is ₹ 200 and the material carrying charges work out to be 20% of the average material. The economic order quantity (EOQ) is –
    (a) 1,096 units (b) 316 units
    (c) 490 units (d) 33 units

3. S limited produces 4,000 litres of paints on a quarterly basis. Each litre requires 2 kgs. of raw material. The cost of placing one order for raw material is ₹ 40 and the purchasing price of raw material is ₹ 50 per kg. the storage cost and interest cost is 2% and 6% per annum respectively. Economic Order Quantity will be:
    (a) 283 kgs. (b) 566 kgs.
    (c) 400 kgs. (d) 800 kgs.

4. If annual total carrying cost, per unit carrying cost and cost per order are ₹15,000, ₹ 10 and ₹ 150 respectively, then Economic Order Quantity will be :
    (a) 1,500 units (b) 3,000 units
    (c) 100 units (d) 200 units

5. A company purchases 2,000 units of a particular item per year at a unit cost of ₹20. The ordering cost is ₹ 50 per order and the inventory carrying cost is 25% on unit cost. What will be the total cost, if company decides to buy on the basis of EOQ?

(a) ₹ 41,325 (b) ₹ 41,000
(c) ₹ 41,500 (d) ₹ 41,525

6. EOQ is 200 units, ordering cost ₹ 20 per order and total purchases 4,000 units. The carrying cost per unit will be –

(a) ₹ 2 (b) ₹ 6
(c) ₹ 4 (d) None of the above

7. If the annual carrying cost of material Z is ₹ 4 per unit and its total carrying cost is ₹ 12,000 p.a., the economic order quantity of the material is:

(a) 3,000 units (b) 4,000 units
(c) 5,000 units (d) 6,000 units

8. Quarterly consumption of materials : 2,000 kgs.
Cost of placing an order : ₹ 50
Cost per unit : ₹ 40
Storage and other carrying costs : 8% of average inventory
The economic order quantity and number of orders to be placed per quarter of the year will be –

(a) 400 kgs. and 5 orders
(b) 500 kgs. and 4 orders
(c) 500 kgs. and 12 orders
(d) 400 kgs. and 6 orders

9. For a product X, following information is available:
Maximum consumption per week : 300 units
Normal consumption per week : 200 units
Re-order period : 2 to 4 weeks

The re-order level will be –

(a) 400 units (b) 600 units
(c) 1,200 units (d) 800 units

10. The maximum and minimum lead time is 4 weeks and 3 weeks respectively. If the maximum and minimum weekly consumption is 25 units and 20 units respectively, the re-ordering level will be –

(a) 100 units (b) 110 units
(c) 120 units (d) 140 units

11. In a company, weekly minimum and maximum consumption of Material A is 25 and 75 units respectively. The re-order quantity as fixed by the company is 300 units. The material is received within 4 to 6 weeks from issue of supply order. Maximum level of Material A is –

(a) 640 Units (b) 650 Units
(c) 175 units (d) 560 units

12. Following information is given for Component 'A':
Normal usage 50 units per week, maximum usage 75 units per week, reorder period 4 to 6 weeks. The minimum level of stock will be –

(a) 250 units (b) 150 units
(c) 450 units (d) 200 units.

13. Re-order quantity : 300 kgs.
Minimum usage : 20 kgs. per day
Minimum lead time : 5 days
Maximum stock level : 400 kgs.
Re-order level will be –

(a) 350 kgs. (b) 200 kgs.
(c) 375 kgs. (d) 150 kgs.

14. If the Minimum Stock Level is 2,500 units, Normal Consumption is 150 units, Maximum Re-order Period is 10 days and Normal Re-order Period is 8 days, then Re-order Level will be:

(a) 1,500 units (b) 4,000 units
(c) 1,200 units (d) 3,700 units

15. V Ltd. is the manufacturer of picture tubes for TV. The following are details of their operation. Minimum usages 50 tubes per week, Maximum usages 200 tubes per week; Normal usages 100 tubes per week; lead time to supply 4-6 weeks; and Re-

order quantity 400 tubes. What would be the maximum and minimum level of stock?

(a) 1,400 units and 700 units (b) 1,200 units and 700 units

(c) 1,300 units and 600 units (d) 1,100 units and 600 units

16. A company produces a single product for which following data is available:

Average production per week	: 200 units
Usage per unit	: 10 kgs.
Re-order level	: 8,000 kgs.
Delivery time required	: 2 weeks

The minimum level of stock required will be –

(a) 3,000 kgs. (b) 5,000 kgs.

(c) 4,000 kgs. (d) 2,500 kgs.

17. If minimum stock level and average stock level of a raw material are 4,000 and 9,000 units respectively, then its reorder quantity will be

(a) 8,000 units (b) 10,000 units

(c) 11,000 units (d) 9,000 units

18. 4,000 kgs. of material is purchased @ ₹ 2 per kg. Normal wastage is estimated at the rate of 10%. The wastage has recovery value of ₹ 1.10 per kg. Calculate cost of material of work order of 600 units, if each unit requires 1.5 kg. of material –

(a) ₹ 1,260 (b) ₹ 1,800

(c) ₹ 1,620 (d) ₹ 1,890

19. Following information is available regarding a Component X:

1st January, 2023 :	
Opening balance	50 units @ ₹ 4
Receipts :	
5th January, 2023	100 units @ ₹ 5
12th January, 2023	200 units @ ₹ 5.50
Issues :	
2nd January, 2023	30 units
18th January, 2023	170 units

The value of closing stock according to FIFO method is –

(a) ₹ 660 (b) ₹ 770

(c) ₹ 825 (d) ₹ 1,100

20. Amaze Ltd. had an opening inventory of 5,000 units costing ₹ 5 per unit on 1st April, 2023. Following receipts and issues took place in April, 2023:

5th April, 2023	Purchased 800 units @ ₹ 8 per unit
12th April, 2023	Purchased 200 units @ ₹ 8 per unit
15th April, 2023	Issued 3,000 units
25th April, 2023	Purchased 1,000 units @ ₹ 9 per unit

Cost of inventory as on 30th April, 2023 under weighted average basis will be –

(a) ₹ 25,500 (b) ₹ 27,000

(c) ₹ 20,000 (d) ₹ 23,500

9 EMPLOYEE COST AND DIRECT EXPENSES

THEORY BASED

1. Employee cost includes –
   (a) Wages and Salaries (b) Allowances and incentives
   (c) Payment for overtime (d) All of the above

2. Which of the following is a situation in which the bonus under Halsey Plan (50%) as well as under Rowan Plan will be same?
   (a) When time saved is less than time taken
   (b) When time saved is more than time taken
   (c) When time saved is equal to time taken
   (d) No such situation is possible

3. If the time saved is less than 50% of the standard time, then wages under Rowan and Halsey premium plan on comparison gives –
   (a) More wages under Rowan plan than Halsey plan
   (b) More wages under Halsey plan than Rowan plan
   (c) Equal wages under both plans
   (d) None of the above

4. Idle time is the time under which –
   (a) Full wages are paid to workers (b) No productivity is given by the workers
   (c) Both (a) and (b) (d) None of the above

5. The abnormal idle time is due to:
   (a) rest pauses (b) tea break
   (c) tool setting (d) strikes or lockout

6. Cost of idle time due to abnormal causes should be :
   (a) Charged to overhead costs
   (b) Charged to respective jobs
   (c) Charged to costing profit and loss account
   (d) None of the above

7. Cost of idle time due to non-availability of raw material is –
   (a) Charged to costing profit and loss
   (b) Charged to overheads
   (c) Charged to respective jobs
   (d) None of the above

8. What will be the treatment of overtime premium in cost accounting, if it is due to circumstances beyond control –
   (a) Charged to general overheads
   (b) Charged to the job directly
   (c) Charged to the concerned department
   (d) Charged to costing profit and loss account

9. If the overtime arises for completing a job within a specified time as requested by the customer, then the entire amount of overtime including overtime premium should be charged:
   (a) To that customer (b) To general overheads
   (c) To costing profit and loss account (d) To a particular department

10. If the overtime is done irregularly to meet the requirements of production, then the overtime premium is charged to:
   (a) The specific job directly (b) Factory overheads
   (c) Costing profit and loss account (d) Any of the above

11. The rate of change of labour force in an organisation during a specified period is called –
   (a) Labour efficiency (b) Labour turnover
   (c) Labour productivity (d) Labour planning

12. Which one of the following, does not account for increasing labour productivity:
   (a) Job satisfaction (b) Motivating labour
   (c) Proper supervision and control (d) High labour turnover

13. Which of the following are the methods of measurement of labour turnover?
   (a) Separation rate method and Replacement method
   (b) Replacement method and Labour flux rate method

(c) Separation rate method and Labour flux rate method

(d) Separation rate method; Replacement method and Labour flux rate method

14. Labour turnover is measured by –

(a) Number of workers replaced / average number of workers

(b) Number of workers left / number in the beginning plus number at the end

(c) Number of workers joining / number in the beginning of the period

(d) All of these

15. Example of Direct Expenses is

(a) Rent (b) Royalty charged on production

(c) Bonus to employee (d) None of these

NUMERICAL BASED

1. A worker is allowed 2 hours to produce 5 units of a product. Wages are paid to the worker @ ₹ 20 per hour. In a 48 hours week, the worker produced 150 units. The earnings and effective rate per hour of the worker as per Rowan plan will be –

(a) ₹ 1,940 and ₹ 40.42 (b) ₹ 1,450 and ₹ 30.21

(c) ₹ 1,152 and ₹ 19.20 (d) ₹ 1,152 and ₹ 24.00

2. Wage rate : ₹ 1.50 per hour
Time allowed for job : 20 hours
Time taken : 15 hours
The total earnings and effective rate per hour of the worker under Halsey plan is –

(a) ₹ 26.25 and ₹ 1.31 (b) ₹ 26.55 and ₹ 1.77

(c) ₹ 26.25 and ₹ 1.75 (d) ₹ 27.55 and ₹ 1.84

3. If standard time is 72 hours, then what would be time saved to getting same bonus under Halsey Plan and Rowan Plan?

(a) 24 hours (b) 36 hours

(c) 48 hours (d) 18 hours

4. During the third week of March, Mr. R. produced 420 units. The standard time allowed to produce one unit is 10 minutes. If he received wages for a guaranteed 48 hours per week at the rate of ₹ 5 per hour and bonus according to Hasley Plan, the total earning was:

(a) ₹ 295 (b) ₹ 350

(c) ₹ 240 (d) ₹ 276.67

Consider the following details to answer questions 5 and 6

A worker takes 15 hours to complete a particular work for which time allowed is 20 hours. His wage rate is ₹ 5 per hour. Following additional information is available:

Material cost of the work₹ 50

Factory Overheads 100% of wages

5. Factory cost of the work if the worker is paid bonus as per Halsey Plan

(a) ₹ 87.50 (b) ₹ 137.50

(c) ₹ 225 (d) ₹ 75

6. Factory cost of the work if the worker is paid bonus as per Rowan Plan

(a) ₹ 93.75 (b) ₹ 143.75

(c) ₹ 75 (d) ₹ 237.50

7. A skilled worker is paid a guaranteed wage rate of ₹ 150 per hour. The standard time allowed for a job is 10 hours. He took 8 hours to complete the job. He has been paid wages under Rowan Incentive Plan and earned an effective hourly rate of ₹ 180 per hour. The time in which he should complete the job, if the worker is placed under Halsey Incentive Scheme (50%), and he wants to maintain the same effective hourly rate of earnings, will be:

(a) 8 hours (b) 10 hours

(c) 7.14 hours (d) None of these

8. A worker in PQR Ltd., is paid a guaranteed wages of ₹ 60 per hour. The standard time per unit for a particular product is 4 hours. X, a machine man, has been paid wages under the Rowan incentive plan and he had earned an effective hourly rate of ₹ 75 on the manufacture of that particular product. Had he been put on Halsey incentive scheme, his effective hourly rate would be:

(a) ₹ 67.50 (b) ₹ 52.50

(c) ₹ 70.00 (d) ₹ 65.00

9. A skilled worker is paid a guaranteed wage rate of ₹ 15 per hour in a 48-hour week. The standard time to produce a unit is 18 minutes. During a week, a skilled worker has produced 200 units of the product. Wages of worker under piece-rate with guaranteed weekly wage will be:

(a) ₹ 720 (b) ₹ 240

(c) ₹ 3,000 (d) ₹ 900

10. Relevant data regarding number of workers on roll is given below for June, 2023:

At the beginning of the month	750
At the end of the month	850

During June, 2023, 10 workers left, 30 workers were discharged and 100 workers were recruited. Of these, 15 workers were recruited in the vacancies of those leaving, while the rest were engaged for an expansion scheme.

The labour turnover rate according to replacement method for June, 2023 is -

(a) 1.875 % (b) 1.647 %

(c) 1.750 % (d) 5.00 %

11. The cost accountant of Zed Ltd. has computed the following labour turnover rates for the quarter ended 31st March, 2023:

Under Flux Method	15%
Under Replacement Method	10%
Under Separation Method	6%

If the number of workers replaced during the quarter is 75, find out the number of workers left and discharged:

(a) 48 (b) 45

(c) 30 (d) 64

12. Labour turnover rate for the quarter ended 31st Dec. 2018 as 16%, 8% and 6% under flux, replacement and separation methods respectively. If the number of workers replaced during the quarter is 60. What number of workers recruited and joined?

(a) 112 (b) 75

(c) 15 (d) 100

Consider the following details to answer questions 13 to 15

Following data have been extracted from the books of PQR limited:

(i)	Salary (each employee, per month)	₹ 30,000
(ii)	Bonus	25% of salary
(iii)	Employer's contribution to PF, ESI etc	15% of salary
(iv)	Total cost for employees' welfare activities	₹ 6,61,500 per annum
(v)	No. of employees	175
(vi)	Normal idle time	70 hours per annum
(vii)	Abnormal idle time (due to power failure)	50 hours
(viii)	Working days per annum	310 days of 8 hours

13. Annual cost of each employee

(a) ₹ 3,60,000 (b) ₹ 5,04,000

(c) ₹ 11,65,500 (d) ₹ 5,07,780

14. Employee cost per hour

(a) ₹ 204.75 (b) ₹ 215.16

(c) ₹ 234 (d) ₹ 210.70

15. Cost of abnormal idle time, per employee

(a) ₹ 10,535 (b) ₹ 10,758

(c) ₹ 11,700 (d) ₹ 10,237.50

16. Royalty paid on sales ₹ 89,000 and Software development charges related to product is ₹ 22,000. Direct Expenses will be:

(a) ₹ 1,11,100 (b) ₹ 1,11,000

(c) ₹ 1,11,110 (d) ₹ 1,10,000

10 UNIT & BATCH COSTING

THEORY BASED

1. Unit Costing is applicable where:
   (a) Products produced are unique and no two products are same
   (b) Dissimilar articles are produced as per customer specification
   (c) Homogeneous articles are produced on a large scale
   (d) Products made require different raw materials

2. Batch Costing is similar to job costing except that a:
   (a) Job becomes a cost unit
   (b) Batch becomes the cost unit instead of a job
   (c) Process becomes a cost unit
   (d) None of the above

3. Batch production is suitable for:
   (a) Mass production in batches
   (b) Production of homogeneous articles in batches
   (c) Production of articles in mass scale
   (d) Mass production in jobs

4. In batch costing, at the level of production of economical lot size:
   (a) Carrying cost is minimum
   (b) Setup cost is minimum
   (c) Total set-up cost and carrying cost is minimum
   (d) Computation of cost of production is easy

5. In Batch Costing, with increase in batch size:
   (a) There is an increase in carrying cost and set-up cost
   (b) There is a decrease in carrying cost and set-up cost
   (c) There is an increase in carrying cost and set-up cost is reduced
   (d) There is a decrease in carrying cost but the set-up cost is increased

NUMERICAL BASED

1. Amaze Ltd. manufactures ring binders which are embossed with customer's own logo. A customer has ordered a batch of 500 binders. The following information gives the cost for a typical batch of 100 binders:

Direct material	₹ 50
Direct labour	₹ 20
Machine set-up	₹ 5
Design and art work	₹ 15
Prime cost	₹ 90

Amaze Ltd. absorbs production overheads @ 10% of direct wages. 5% is added to the total production cost of each batch to allow for selling and distribution expenses. Profit margin is 20% of sales value. Selling price of 500 binders will be –

(a) ₹ 605 (b) ₹ 120.75

(c) ₹ 603.75 (d) ₹ 386

2. A company manufactures several components in batches. The following data relates to one component:

Annual demand : 32,000 units

Set-up cost per batch : ₹ 120

Annual rate of interest : 12%

Cost of production per unit : ₹ 16

The optimum batch size is

(a) 4,000 units (b) 3,000 units

(c) 2,500 units (d) 2,000 units

3. Monthly demand for a product 500 units

Setting-up cost per batch ₹ 60

Cost of manufacturing per unit ₹ 20

Rate of interest 10% p.a.

The economic batch quantity is –

(a) 400 units (b) 600 units

(c) 500 units (d) 200 units

4. A company manufactures a component in a process. Material cost is ₹ 6 per component, Wages of the operator ₹ 7.20 per hour, Machine hour rate ₹ 1.50 per hour, setting up time of machine (productive) 5 hours, manufacturing time 10 minutes per component. Company producing 50 batches consist of 100 components in each batch. What will be the cost per batch and total setting up cost?

(a) ₹ 740.00 and 43.50 (b) ₹ 745.00 and 43.50

(c) ₹ 745.00 and 36 (d) ₹ 74.00 and 36

5. G ltd. manufactures 'S' that is used by hospitals for surgery. As per the estimates provided by Pharmaceutical Industry Bureau, there will be demand of 40 million units of 'S' in the coming year. G ltd. is expected to have a market share of 2.5% of the total market demand of 'S' in the coming year. It is estimated that it costs ₹ 1.5 as inventory holding costs per unit per month and that the set-up cost per run of manufacture is ₹ 225. The optimum run size for 'S' will be:

(a) 1,09,545 units (b) 17,320 units

(c) 31,623 units (d) 5,000 units

11 JOB COSTING

THEORY BASED

1. Which of the following costing methods is most suitable for the industries, where the production is not on continuous basis, rather it is only when order from customers is received and that too as per the specifications of the customers?
   (a) Process costing (b) Job costing
   (c) Batch costing (d) Service costing

2. In case work undertaken or products produced are of diverse nature, the system of costing to be used should be:
   (a) Service Costing (b) Job Costing
   (c) Process Costing (d) None of these

3. Job costing is used in
   (a) Furniture making (b) Repair shops
   (c) Printing press (d) All of the above

4. Suitable costing system for repair shops is:
   (a) Unit costing (b) Operation costing
   (c) Operating costing (d) Job costing

5. Which of the following method of costing is suitable for Interior Decoration?
   (a) Job costing (b) Service costing
   (c) Batch costing (d) Process Costing

6. The most suitable cost system where the products differ in type of material and work performed is
   (a) Service Costing (b) Job costing
   (c) Process costing (d) All of these.

7. In a job cost system, costs are accumulated

(a) On a monthly basis (b) By specific job

(c) By department or process (d) By kind of material used

8. The production planning department prepares a list of materials and stores required for the completion of a specific job order, this list is known as:

(a) Bin card (b) Bill of material

(c) Material requisition slip (d) Purchase requisition

9. In job costing to record the issue of direct materials to a job which of the following document is used?

(a) Purchase order (b) Goods receipt note

(c) Material requisition (d) Purchase requisition

10. Which of the following is not a part of job order cost sheet –

(a) Direct material (b) Direct labour

(c) Actual factory overheads (d) Applied factory overheads.

NUMERICAL BASED

1. From the following particulars relating to Job No. 555:

	₹
Direct materials	16,000
Direct labour	8,000
Direct expenses	1,600

Works overheads are recovered on the basis of 50% on prime cost and administrative overheads at 10% of works cost. The total cost of Job No. 555 is

(a) ₹ 45,000 (b) ₹ 45,240

(c) ₹ 42,240 (d) ₹ 43,000

2. The following information is extracted from the job ledger in respect of Job No. 404:

Material	: ₹ 3,400
Wages	: 80 hours @ ₹ 2.50 per hour
Variable overheads incurred for all jobs	: ₹ 5,000 for 4,000 labour hours

If the job is billed for ₹ 4,200, the profit will be –

(a) ₹ 600 (b) ₹ 500

(c) ₹ 700 (d) ₹ 650

3. A company calculates the prices of jobs by adding overheads to the prime cost and adding 30% to total costs as a profit margin. Job number Y256 was sold for ₹ 1,690 and incurred overheads of ₹ 694. What was the prime cost of the job?

(a) ₹ 489 (b) ₹ 606

(c) ₹ 996 (d) ₹ 1,300

4. A company has been asked to quote for a job. The company aims to make a net profit of 30% on sales. The estimated cost for the job is as follows:

Direct materials 10 kgs. @ ₹ 10 per kg.

Direct labour 20 hours @ ₹ 5 per hour

Variable production overheads are recovered at the rate of ₹ 2 per labour hour.

Fixed production overheads for the company are budgeted to be ₹ 1,00,000 each year and are recovered on the basis of labour hours.

There are 10,000 budgeted labour hours each year. Other costs in relation to selling, distribution and administration are recovered at the rate of ₹ 50 per job.

The sales value of the job will be:

(a) ₹ 700 (b) ₹ 637

(c) ₹ 490 (d) None of these

5. A factory uses job costing system. The following is the cost sheet for the year 2019-20:

Particulars	Amt. (₹)
Direct Materials	18,00,000
Direct Wages	15,00,000
Prime Cost	33,00,000
Add : Factory Overheads	9,00,000
Cost of Production	42,00,000
Add : Administration Overheads (General)	8,40,000
Add : Selling and Distribution Overheads	10,50,000
Cost of Sales	60,90,000
Add : Profit	12,18,000
Sales	73,08,000

In 2019-20, the factory has received an order for a job. It is estimated that direct materials required will be ₹4,80,000 and direct labour will cost ₹3,00,000. The factory overheads are recovered as percentage of wages, whereas, other overheads are recovered as percentage of cost of production. Assuming the selling and distribution overheads have gone up by 15%, the price of for the job if factory intends to earn the same rate of profit on sales will be:

(a) ₹ 17,13,600 (b) ₹ 14,28,000

(c) ₹ 16,66,000 (d) None of these

12 BUDGET

THEORY BASED

1. From the following, which one is a functional budget –
   (a) Master budget (b) Fixed budget
   (c) Sales budget (d) Current budget

2. The budgeting system designed to change in relation to level of activity actually attained is known as –
   (a) Fixed budgeting (b) Flexible budgeting
   (c) Performance budgeting (d) Functional budgeting

3. The fixed-variable cost classification has a special significance in the preparation of _____ .
   (a) Flexible budget (b) Master budget
   (c) Cash budget (d) Capital budget

4. If actual output is lower than budgeted output which of the following costs would you expect to be lower than the original budget?
   (a) Total variable costs (b) Total fixed costs
   (c) Fixed costs per unit (d) Variable costs per unit

5. If a company plans to sell 16,000 units of product but sells 20,000, the most appropriate comparison of the cost data associated with the sales will be by a budget based on _____ .
   (a) The original planned level of activity (b) 18,000 units of activity
   (c) 20,000 units of activity (d) 16,000 units of activity

6. If a company wishes to establish a factory overhead budget system in which estimated costs can be derived directly from estimates of activity levels, it should prepare a:
   (a) Master budget (b) Cash budget
   (c) Flexible budget (d) Fixed budget

7. Budget which remains unchanged regardless of the actual level of activity is known as

(a) Fixed budget (b) Functional budget
(c) Flexible budget (d) Cash budget

8. The basic difference between a static budget and a flexible budget is –

(a) A static budget is based on one specific level of production and a flexible budget can be prepared for any production level within a relevant range
(b) A static budget is for an entire production, but a flexible budget is applicable only to a single department
(c) Flexible budget allows management liberty in meeting goals, whereas a static budget is based on a fixed standard.
(d) A flexible budget considers only variable costs, but a static budget considers all costs

9. A budget that gives a summary of all the functional budgets and budgeted statement of profit and loss is called –

(a) Flexible budget (b) Master budget
(c) Performance budget (d) Zero base budget

10. Which one of the following would not form part of master budget –

(a) Cash budget (b) Statement of profit and loss
(c) Statement of financial position (d) None of the above.

11. Sales budget is a _____ .

(a) Expenditure budget (b) Functional budget
(c) Master budget (d) None of the above

12. A Ltd. is a manufacturing company that has no production resource limitations for the foreseeable future. The Managing Director has asked the company managers to coordinate the preparation of their budgets for the next financial year. In what order should the following budgets be prepared?

(1) Sales budget (2) Raw-material consumption
(3) Production budget (4) Purchase budget
(a) (1), (4), (3), (2) (b) (1), (3), (2), (4)
(c) (1), (4), (2), (3) (d) (4), (2), (3), (1)

13. Purchases budget and materials budget are same:
    (a) Purchases budget is a budget which includes only the details of all materials purchased
    (b) Purchases budget is a wider concept and thus includes not only purchases of materials but also other item's as well
    (c) Purchases budget is different from materials budget; it includes purchases of other items only
    (d) None of the above

14. Individual budget schedules are prepared to develop an annual comprehensive or master budget. The budget schedule that would provide the necessary input data for the direct labour budget would be the:
    (a) Sales forecast
    (b) Raw materials purchases budget
    (c) Schedule of cash receipts and disbursements
    (d) Production budget

15. "A favourable budget variance is always an indication of efficient performance." Do you agree, give reason?
    (a) A favourable variance indicates, saving on the part of the organization hence it indicates efficient performance of the organization
    (b) Under all situations, a favourable variance of an organization speaks about its efficient performance
    (c) A favourable variance does not necessarily indicate efficient performance, because such a variance might have been arrived at by not carrying out the expenses mentioned in the budget
    (d) None of the above

16. A factor which limits the activities of an undertaking which is taken into account while preparing budget is known as –
    (a) Budget manual
    (b) Budget controller
    (c) Budget key factor
    (d) Budget centre

17. Efficiency ratio is:
    (a) The extent of actual working days avoided during the budget period
    (b) Activity ratio / capacity ratio
    (c) Whether the actual activity is more or less than budgeted activity
    (d) None of the above

18. Activity ratio depicts:
    (a) Whether actual capacity utilized exceeds or falls short of the budgeted capacity
    (b) Whether the actual hours used for actual production were more or less than the standard hours
    (c) Whether actual activity was more or less than the budgeted capacity
    (d) None of the above

19. The budget control organization is usually headed by a top executive who is known as:
    (a) General manager
    (b) Budget director / budget controller
    (c) Accountant of the organization
    (d) None of the above

20. On the basis of the budget reports
    (a) Management analyzes differences between actual and planned results
    (b) Management may take corrective action
    (c) Management may modify the future plans
    (d) All of these

21. A budget report is prepared on the principle of exception and thus –
    (a) Only unfavourable variances should be shown
    (b) Only favourable variance should be shown
    (c) Both favourable and unfavourable variances should be shown
    (d) None of the above

22. Under which of the following method of budgeting, all activities are re-evaluated each time a budget is set –
    (a) Materials budget (b) Zero base budgeting
    (c) Sales budget (d) Overheads budget

23. A budget in which a responsibility centre manager must justify each planned activity and its budgeted total cost is called –

(a) Traditional budget (b) Zero based budget

(c) Master budget (d) Functional budget

24. Match the following:

List-I	List-II
P. Performance budgeting	1. Fixed budget
Q. Zero base budgeting	2. Production oriented
R. Summary of all functional budgets	3. Each expense be justified for new period
S. Remains unchanged irrespective of level of activity actually attained.	4. Master budget

Select the correct answer from the options given below:

	P	Q	R	S
(a)	3	4	1	2
(b)	3	4	2	1
(c)	2	4	1	3
(d)	2	3	4	1

NUMERICAL BASED

1. A factory which expects to operate 6,000 hours, i.e., at 60% level of activity, Semi-variable expenses at this level is ₹ 900. The semi-variable expenses go up by 10% between 85% and 95% activity and by 20% above 95% activity. The semi-variable expenses at 100 per cent activity is

(a) ₹ 900 (b) ₹ 1,080

(c) ₹ 1,000 (d) ₹ 1,755

2. Budgeted sales (in units) is 3,840, in the budgeted period of 1 month having 20 working days. The anticipated closing stocks for budget period is 4 days' sales. Opening stock is 808 units. The production units are:

(a) 3,544 units (b) 1,080 units

(c) 3,800 units (d) 2,520 units

3. ABC Ltd. produces and sells a single product. Sales budget to the calendar year 2022 for each quarter is as under:

No. of units to be sold:

Quarter-I : 12,000

Quarter-II : 15,000

Quarter-III : 16,500

Quarter-IV : 18,000

The year 2022 is expected to open with an inventory of 4,000 units of finished product and close with an inventory of 6,500 units. Production is customarily scheduled to provide for two-third of the current quarter's demand plus one-third of the following quarter's demand. Production for Quarter-IV would be –

(a) 13,500 units (b) 15,500 units

(c) 17,000 units (d) 18,500 units

4. Crown Ltd. has forecast its sales for the next three months as follows:

April : 12,000 units, May : 15,000 units, June : 17,000 units. Opening stock as on 1st April is expected to be 3,500 units. Closing stock should be equal to 20% of the coming month's sales needs. The number of units required to be produced in May is –

(a) 14,600 units (b) 11,500 units

(c) 15,400 units (d) 13,600 units

5. Budgeted sales for April & May is 24,000 & 30,000 units respectively. The production pattern in each month is based on 80% of the sales of the current month and 20% of the sales of the next month. Budgeted production for the month of April is: -

(a) 25,200 units (b) 28,800 units

(c) 25,800 units (d) 28,500 units

6. To produce one unit of 'A', two ingredients, i.e., 2 kgs. of X and 3 kgs. of Y are required:

Stock levels	Opening	Closing
A (Units)	5,000	8,000
X (Kgs.)	11,000	14,000
Y (Kgs.)	18,000	21,000

What will be the quantity of consumption of ingredients X and Y, if 20,000 units of A are sold–

(a) 46,000 Kgs. and 69,000 Kgs. respectively

(b) 49,000 Kgs. and 72,000 Kgs. respectively

(c) 40,000 Kgs. and 60,000 Kgs. respectively

(d) 43,000 Kgs. and 63,000 Kgs. respectively.

7. Product A requires 5 kg. of material per unit. Budgeted Production is 2,480 units. Budget period is April 2023, with no holiday. The anticipated closing stocks for budget period is 15 days' consumption. Opening stock is 3,600 kgs. The purchase quantity will be:

(a) 120 kgs. (b) 4,840 kgs.

(c) 9,800 kgs. (d) 15,000 kgs.

8. Budgeted Production is 2,480 units. Standard labour hours allowed per unit of product is 3 hours. Rate of wages is 40 per hour. The budgeted labour cost is:

(a) ₹ 99,200 (b) ₹ 2,97,600

(c) ₹ 33,067 (d) ₹ 186

13 STANDARD COSTING

THEORY BASED

1. The control technique which compares standard costs and revenues with actual results to obtain variances is known as –
   (a) Marginal costing (b) Standard costing
   (c) Process costing (d) Budgetary control

2. Excess of actual cost over standard cost is a
   (a) Favourable variance (b) Un favourable variance
   (c) Abnormal gain (d) None of the above

3. The standard which is attainable under favourable conditions is:
   (a) Theoretical standard (b) Expected standard
   (c) Normal standard (d) Basic standard

4. The standard most suitable from cost control point of view is:
   (a) Normal standard (b) Theoretical standard
   (c) Expected standard (d) Basic standard

5. Controllable variances are best disposed-off by transferring to:
   (a) Cost of goods sold
   (b) Cost of goods sold and inventories
   (c) Inventories of work–in–progress and finished goods
   (d) Costing profit and loss account

6. Basic standards are:
   (a) Those standards, which require high degree of efficiency and performance.
   (b) Average standards and are useful in long term planning.
   (c) Standards, which can be attained or achieved
   (d) Assuming to remain unchanged for a long time.

7. Material usage variable can be calculated using the formula-

(a) (Standard quantity for actual output- Actual quantity) x Actual price

(b) (Standard quantity for actual output- Actual quantity) x Standard price

(c) (Standard price – Actual price) x Actual quantity

(d) (Standard price – Actual price) x Standard quantity

8. Match the following:

List-I		List-II	
P.	Material cost variance	1.	SP (Actual Q in standard proportion - AQ)
Q.	Material price variance	2.	SP (SQ - AQ)
R.	Material usage variance	3.	AQ (SP - AP)
S.	Material mix variance	4.	SC - AC

Select the correct answer from the options given below:

	P	Q	R	S
(a)	4	3	2	1
(b)	2	1	4	3
(c)	4	1	2	3
(d)	3	4	2	1

9. Match the following:

List-I		List-II	
P.	Labour cost variance	1.	Actual hours paid × (Standard rate – Actual rate)
Q.	Labour rate variance	2.	Standard cost – Actual cost
R.	Efficiency variance	3.	Idle hours × Standard rate per hour
S.	Idle time variance	4.	Standard rate × (Standard hours – Actual hours worked)

Select the correct answer from the options given below:

	P	Q	R	S
(a)	4	3	2	1
(b)	2	3	4	1
(c)	4	1	2	3
(d)	2	1	4	3

10. Idle time variance is always

(a) Favourable (b) Unfavourable

(c) Controllable (d) None of the above

11. Overhead cost variances is:

(a) The difference between overheads recovered on actual output - actual overhead incurred.

(b) The difference between budgeted overhead cost and actual overhead cost.

(c) Obtained by multiplying standard overhead absorption rate with the difference between standard hours for actual output and actual hours worked.

(d) None of the above

12. Fixed overheads volume variance is sub-divided into –

(a) Efficiency variance and Capacity variance

(b) Efficiency variance, Capacity variance and Calendar variance

(c) Expenditure variance and Efficiency variance

(d) Expenditure variance, Capacity variance and Calendar variance

13. Match the following:

List-I (Variances)	List-II (Causes)
P. Overheads efficiency variance	1. Power failure
Q. Overheads volume variance	2. General price rise in the economy.
R. Labour idle time variance	3. Poor working conditions
S. Labour rate variance	4. Working days being more or less than budgets

Select the correct answer from the options given below –

	P	Q	R	S
(a)	4	3	2	1
(b)	3	4	1	2
(c)	3	1	4	2
(d)	2	1	4	3

NUMERICAL BASED

1. A chemical is manufactured by combining two standard items. Input-X (Standard price ₹ 60/ kg.) and Input-Y (₹ 45/ kg) in the ratio 60% : 40%. Ten percentage of input is lost during processing. If during a month 1,200 kgs. of chemical is produced incurring a total cost of ₹ 69,600, the total material cost variance will be –

(a) 2,000(F) (b) 2,400 (A)
(c) 2,400 (F) (d) 3,000 (A)

2. Shine Furniture House uses sunmica tops for table making, the following information is available:

Standard quantity of sunmica per table	: 4 sq. ft.
Standard price per sq. ft. of sunmica	: ₹ 5
Actual number of tables manufactured	: 1,000
Sunmica actually used	: 4,300 sq. ft.
Actual price of sunmica per sq. ft.	: ₹ 7

Material cost variance is –

(a) 10,100 (A) (b) 10,500 (A)
(c) 11,000 (A) (d) 11,500 (A)

3. The standard material required to manufacture one unit of Product-A is 5 kgs. and the standard price per kg. of material is ₹ 3. The cost accountant's records, however, reveal that 16,000 kgs. of material costing ₹ 52,000 were used for producing 3,000 units of Product-A. Material price variance will be –

(a) 4,000 (A) (b) 4,000 (F)
(c) 4,300 (A) (d) 4,300 (F)

4. If material price variance is ₹ 400 (A), material cost variance is ₹ 600 (F), then material usage variance is –

(a) 1,000 (F) (b) 200 (A)
(c) 200 (F) (d) 1,000 (A)

5. If material mix variance us ₹ 500 (F), material yield variance is ₹ 800 (A), then materials usage variance is –

(a) 1,300 (A) (b) 1,300 (F)
(c) 300 (A) (d) 300 (F)

6. Standard rate of wages ₹ 0.90 per hour; standard output 20 units per hour; actual wages paid ₹ 76 for 80 hours (idle time 10 hours). Output produced 1,640 units. Direct labour rate variance is –

(a) 4.00 (A) (b) 4.00 (F)

(c) 4.20 (F) (d) 4.20 (A)

7. Standard hourly rate is ₹ 5 per hour and actual rate ₹ 4.50 per hour. The labour rate variance is ₹ 1,500 (F). The actual labour hours worked is –

(a) 1,500 Hours (b) 7,500 Hours

(c) 3,000 Hours (d) 6,750 Hours

8. Find the labour efficiency variance from the following information:

Actual hours worked	: 5,600
Actual wages paid	: ₹ 7,840
Standard rate @ ₹ per hour	: 2
Standard hours produced	: 4,000

(a) 3,200 (A) (b) 3,200 (F)

(c) 3,360 (F) (d) 3,360 (A)

9. The following information is provided:

	Budget	Actual
Fixed overheads cost (₹)	1,00,000	1,20,000
Hours	10,000	11,500

The fixed overheads cost variance is:

(a) 20,000 (F) (b) 20,000 (A)

(c) 5,000 (A) (d) 5,000 (F)

10. Actual fixed overhead: ₹ 22,400. Budgeted fixed overheads: ₹ 20,000
Actual hours worked: 28,000. Budgeted hours: 40,000. Fixed overhead expenditure variance is –

(a) 2,800 (A) (b) 2,400 (A)

(c) 2,400 (F) (d) 2,800 (F)

11. The budgeted fixed overheads for a budgeted production of 10,000 units is ₹ 20,000. For a certain period, the actual production was 11,000 units and actual expenditure ₹ 24,000. The volume variance is –

(a) 2,000 (F) (b) 4,000 (A)
(c) 2,000 (A) (d) 4,000(F)

12. Calculate fixed overheads volume variance from the following data:

	Standard	Actual
Output (in units)	8,000	10,000
Working hours	5,000	4,800
Fixed overheads	₹ 40,000	₹ 60,000

Correct answer option is –

(a) 9,000 (F) (b) 10,000 (F)
(c) 11,000 (F) (d) 8,000 (F)

13. If capacity variance is ₹ 48,000 (F) and efficiency variance is ₹ 23,040 (A), the fixed overheads volume variance is –

(a) 24,960 (F) (b) 71,040 (F)
(c) 24,960 (A) (d) 71,040 (A)

14. Following information is given: Standard fixed overheads rate per hour: ₹ 5 Budgeted hours: 12,500, Standard number of working days: 25, Actual hours: 11,500, Actual number of working days: 22. Calendar Variance will be –

(a) 2,840 (A) (b) 5,000 (A)
(c) 2,500 (A) (d) 7,500 (A)

14 MARGINAL COSTING

THEORY BASED

1. Marginal costing provides required information to _____for enabling them to take decisions.

(a) Creditors (b) Management
(c) Bankers (d) None of the above

2. Match the following:

List-I	List-II
P. Marginal cost	1. _____ = Contribution ÷ Sales
Q. P/V ratio	2. Contribution = Selling price – _____
R. Profit	3. _____ = Sales × (1 – P/V ratio)
S. Variable cost	4. Margin of safety = _____. ÷ P/V Ratio

Select the correct answer from the options given below:

	P	Q	R	S
(a)	4	3	2	1
(b)	3	1	4	2
(c)	2	1	4	3
(d)	2	3	4	1

3. At break-even point, total of the contribution is just enough to cover_____ costs.

(a) Variable cost (b) Fixed cost
(c) Both (a) and (b) (d) None of the above

4. Margin of safety can be calculated using the formula –

(a) Total sale - break even sales (b) Fixed cost ÷ P/V Ratio
(c) P/v ratio ÷ Profit (d) Fixed cost ÷ Contribution

5. P/V ratio will _____ at different levels of production.

(a) Decrease (b) Increase
(c) Remain Constant (d) None of the above

6. Which of the following formula cannot be used for calculating P/V ratio –
   (a) (Sales value minus variable cost) / Sales value
   (b) (Fixed cost plus profit) / Sales value
   (c) Change in profits / Change in sales
   (d) Profit / Sales value

7. An increase in variable costs:
   (a) Reduces the contribution (b) Increase the P/V ratio
   (c) Increase the margin of safety (d) Increase the profit

8. Factors which can change the break-even point:
   (a) Change in total amount of fixed costs or change in variable cost per unit.
   (b) Change in the selling price.
   (c) None of the above
   (d) (a) & (b) above.

9. In _____ costing both variable and fixed cost are charged to products.
   (a) Absorption (b) Marginal
   (c) Both (a) and (b) (d) None of the above

10. The costing method in which fixed factory overheads are added to inventory is:
   (a) Activity based costing (b) Marginal costing
   (c) Direct costing (d) Absorption costing

11. Product cost under marginal costing include ___
   (a) Prime cost only
   (b) Prime cost and fixed overheads
   (c) Prime cost and variable overheads
   (d) Materials cost and variable overheads

12. Reporting under marginal costing is accomplished by:
   (a) Matching variable costs against revenue and treating fixed costs as period costs.
   (b) Eliminating all types of stock account.
   (c) Treating all costs as period costs.
   (d) Counting only marginal costs in income statement.

13. Match the following:

List-I	List-II
P. Classification of costs into fixed and variable costs	1. Contribution
Q. Difference between sales and variable costs	2. P/V ratio
R. Both fixed and variable costs are charged to product	3. Marginal costing
S. Contribution ÷ Sales	4. Absorption

Select the correct answer from the following options

	P	Q	R	S
(a)	4	3	1	2
(b)	3	4	1	2
(c)	3	1	4	2
(d)	4	3	2	1

14. When a business is faced with a limiting factor (one which limits the activity of an entity) and there is a choice to be made between options to follow, which of the following statements describes the optimal course of action?

(a) Choose the option which gives the highest unit profit

(b) Choose the option which gives the highest unit contribution

(c) Aim to achieve a balance of activities covering all of the options

(d) Choose the option which gives highest contribution per unit of limiting factor

15. Make of buy decisions are made by comparing _____ cost with outside purchase price.

(a) Fixed (b) Variable

(c) Sunk (d) Joint

NUMERICAL BASED

1. P/V ratio 50%; variable cost of the produce ₹ 25; selling price is –

(a) ₹ 50 (b) ₹ 40

(c) ₹ 30 (d) ₹ 55

2. A product is sold at ₹ 150 per unit and its variable cost is ₹ 70 per unit. The fixed expenses of the business are ₹ 8,000 per year Break-even point (in units) is –

(a) 200 units (b) 50 units

(c) 115 units (d) 100 units

3. PQ Ltd. reports the following cost structure at two capacity levels.

	2,000 units (100% Capacity	1,500 units
Production Overheads I	₹ 3 per unit	₹ 4 per unit
Production overheads II	₹ 2 per unit	₹ 2 per unit

If the selling price, reduced by direct material and labour is ₹ 8 per unit, what would be its breakeven point?

(a) 1,300 units (b) 1,200 units
(c) 1,100 units (d) 1,000 units

4. A product is sold at a price of ₹ 120 per unit and its variable cost is ₹ 80 per unit. The fixed expenses of the business are ₹ 8,000 per year. Break-even point is –

(a) ₹ 24,000 (b) ₹ 20,000
(c) ₹ 16,000 (d) ₹ 28,000

5. For a given product, the sales of a company @ ₹ 200 per unit is ₹ 20,00,000. Variable cost is ₹ 12,00,000 and fixed cost is ₹ 6,00,000. The capacity of the factory is 15,000 units. Capacity utilization at break-even point level is –

(a) 40% (b) 50%
(c) 60% (d) 100%

Consider the following details to answer questions 6 and 7

Fixed cost	₹ 4,000
Break even sales	₹ 20,000
Profit	₹ 1,000
Selling price per unit	₹ 20

6. Calculate sales & marginal cost of sales.

(a) ₹ 25,000; ₹ 20,000 (b) ₹ 20,000; ₹ 25,000
(c) ₹ 30,000; ₹ 35,000 (d) ₹ 35,000; ₹ 30,000

7. Calculate new break-even point if selling price is reduced by 10%.

(a) ₹ 46,000 (b) ₹ 36,000
(c) ₹ 26,000 (d) ₹ 16,000

8. Horizon Ltd. manufactures product BM. Company maintains a margin of safety of 37.5% with contribution to sales ratio of 40%. If the fixed cost is ₹ 5 lakhs, the profit of the company_____

(a) ₹ 24.00 lakhs (b) ₹ 12.50 lakhs
(c) ₹ 3.00 lakhs (d) None of these

9. If margin of safety of AB Ltd. is ₹ 2,40,000 (40% of sales) and P/V ratio is 30%, calculate its break-even sales.

(a) ₹ 3,80,000 (b) ₹ 3,70,000
(c) ₹ 3,60,000 (d) ₹ 3,50,000

10. Profit : ₹ 50,000, Contribution : ₹ 70,000, Sales : ₹ 7,00,000
The amount of margin of safety will be –

(a) ₹ 4,00,000 (b) ₹ 5,00,000
(c) ₹ 2,50,000 (d) ₹ 1,45,000

11. Margin of safety is ₹ 8,000 which represents 40% of sales. P/V ratio is 50%. Fixed cost will be –

(a) ₹ 6,000 (b) ₹ 5,500
(c) ₹ 6,500 (d) ₹ 7,000

12. A company which has a margin of safety of ₹ 4,00,000 makes a profit of ₹ 80,000. Its fixed cost is ₹ 5,00,000, its break-even sales will be –

(a) ₹ 20 lakhs (b) ₹ 30 lakhs
(c) ₹ 25 lakhs (d) ₹ 40 lakhs

Consider the following details to answer questions 13 and 14

Fixed Cost ₹ 90,000; Sales ₹ 3,00,000 and Profit ₹ 60,000.

13. Calculate sale volume if the company suffered a loss of ₹ 30,000 in the next period

(a) ₹ 1,30,000 (b) ₹ 1,25,000
(c) ₹ 1,20,000 (d) ₹ 1,15,000

14. What is the margin of safety for a profit of ₹ 90,000?

(a) ₹ 1,80,000 (b) ₹ 1,70,000
(c) ₹ 1,60,000 (d) ₹ 1,50,000

15. Sunny Ltd. makes product – A which sells at ₹ 80 per unit. Total fixed costs are ₹ 28,000 and marginal cost ₹ 42 per unit. The sales level (in units) that will provide a profit of ₹ 10,000 is –

(a) 1,200 units (b) 1,500 units
(c) 1,250 units (d) 1,000 units

Consider the following details to answer questions 16 and 17

The following data is obtained from the records of an industrial unit:

Sales (4,000 units × ₹ 25)		1,00,000
Material cost	40,000	
Variable overheads	10,000	
Labour cost	20,000	
Fixed overheads	18,000	88,000
Net Profit		12,000

16. The number of units by selling which the company will neither lose nor gain anything.

(a) 4,200 units (b) 2,400 units
(c) 2,800 units (d) 3,200 units

17. The sales needed to earn a profit of 20% on sales.

(a) ₹ 1,50,000 (b) ₹ 1,60,000
(c) ₹ 1,70,000 (d) ₹ 1,80,000

18. When the sales increase from ₹ 40,000 to ₹ 60,000 and profit increases by ₹ 5,000, the P/V ratio is –

(a) 20% (b) 30%
(c) 25% (d) 40%

19. If sales revenue at 60% capacity is ₹ 4,50,000, sales revenue at 70% capacity on a fall in selling price by 5% would be –

(a) ₹ 4,98,750 (b) ₹ 7,50,000
(c) ₹ 5,25,000 (d) ₹ 7,12,000

Consider the following details to answer questions 20 to 22

Fixed Cost : ₹ 4,000, Break-even Point : ₹ 10,000;

20. Calculate the P/V Ratio.

(a) 40% (b) 42%

(c) 45% (d) 50%

21. Calculate the profit when sales are ₹ 20,000

(a) ₹ 5,000 (b) ₹ 4,500

(c) ₹ 4,000 (d) ₹ 3,500

22. Calculate new break-even point if selling price is reduced by 20%.

(a) ₹ 15,000 (b) ₹ 16,000

(c) ₹ 17,000 (d) ₹ 18,000

23. A company producing three products, viz., X, Y and Z has sales mix in the ratio of 2:1:3. The profit volume ratio of the products X, Y and Z are 15%, 30% and 20% respectively. The total fixed cost of the company is ₹ 3,50,000. The break-even point of the company will be –

(a) ₹ 16,15,390 (b) ₹ 17,50,000

(c) ₹ 23,33,333 (d) ₹ 11,66,667

24. A company has fixed cost of ₹ 20,000. It sells two products – A and B, in the ratio 2 units A and 1 unit of B. Contribution is ₹ 1 per unit of A and ₹ 2 per unit of B. How many units of A and B would be sold at break-even point?

(a) 10,000; 5,000 (b) 5,000; 10,000

(c) 12,000; 6,000 (d) 6,000,12,000

25. Following data are given:

	Product–A	Product–B
Contribution per unit (₹)	30	28
Direct labour (hours per unit)	5	4
Maximum possible production (units)	10,000	10,000

Direct labour hours available 72,000 hours. What should be the number of units of A and B to be produced to maximise profit of the company –

(a) A-10,000 units, B-5,500 units (b) B-10,000 units, A-5,500 units

(c) B-10,000 units, A-6,400 units (d) 10,000 units of each A and B.

26. The following cost details relate to a single product manufactured by JK Ltd:

	₹ / Unit
Direct materials (5kgs.)	30
Direct labour (11 hours)	77
Production overheads	45

During the next period direct labour will be restricted to 3,40,000 hours and only 1,40,000 kgs. of material will be available. Demand is expected to be 30,000 units. What will be the limiting factor for the next period?

(a) Material only (b) Labour only

(c) Material and labour (d) Neither material nor labour

27. Selling price of a product-X is ₹ 50 per unit. Variable cost ₹ 20 per unit and 2 kgs. of raw material is needed to produce a unit of product-X. The contribution per kg. of raw material will be –

(a) ₹ 30 (b) ₹ 15

(c) ₹ 60 (d) ₹ 50

ANSWER KEY

1. COST SHEET

THEORY BASED	
Question No.	Answer
1	(a)
2	(d)
3	(c)
4	(d)
5	(d)
6	(c)
7	(c)
8	(a)
9	(b)
10	(b)
11	(c)
12	(b)
13	(c)
14	(d)
15	(a)

NUMERICAL BASED	
Question No.	Answer
1	(c)
2	(b)
3	(d)
4	(b)
5	(b)
6	(a)
7	(d)
8	(d)
9	(c)
10	(a)
11	(d)
12	(c)
13	(b)
14	(a)
15	(a)

2. ABSORPTION COSTING AND OVERHEADS

THEORY BASED	
Question No.	Answer
1	(c)
2	(b)
3	(b)
4	(c)
5	(a)
6	(a)
7	(b)
8	(a)
9	(b)
10	(d)
11	(a)
12	(c)
13	(b)
14	(d)
15	(b)
16	(b)
17	(b)

NUMERICAL BASED	
Question No.	Answer
1	(a)
2	(a)
3	(d)
4	(a)
5	(b)
6	(d)
7	(a)
8	(b)
9	(b)
10	(c)
11	(d)
12	(a)
13	(b)
14	(a)

3. ACTIVITY BASED COSTING

THEORY BASED	
Question No.	Answer
1	(b)
2	(b)
3	(a)
4	(d)
5	(c)
6	(b)
7	(c)
8	(b)
9	(a)
10	(d)
11	(d)
12	(d)
13	(a)
14	(a)
15	(b)
16	(c)

NUMERICAL BASED	
Question No.	Answer
1	(d)
2	(c)
3	(b)
4	(a)
5	(c)

4. COST ACCOUNTING SYSTEMS (INTEGRATED & NON – INTEGRATED ACCOUNTS)

THEORY BASED	
Question No.	Answer
1	(b)
2	(a)
3	(a)
4	(a)
5	(c)
6	(c)
7	(d)
8	(a)
9	(d)
10	(b)
11	(a)
12	(d)
13	(d)
14	(b)
15	(a)
16	(b)
17	(d)
18	(b)
19	(c)
20	(b)
21	(d)
22	(c)
23	(d)
24	(a)
25	(b)

NUMERICAL BASED	
Question No.	Answer
1	(a)
2	(a)
3	(a)
4	(b)
5	(b)
6	(c)
7	(c)
8	(a)

Answer 1:

Dr.	Material Control A/c		Cr.
To balance b/d	1,240	By WIP Control A/c (Jobs)	4,774
To General Ledger Control A/c	4,801	By Factory OH Control A/c (Maintenance works)	412
		By Administrative OH Control A/c	34
		By Selling OH Control A/c	72
		By Balance c/d	749
	6,041		6,041

Answer 2:

Dr.	Material Control A/c		Cr.
To balance b/d	9,450	By WIP Control A/c	45,370
To General Ledger Control A/c	52,400		
(Bal. fig.)		By Capital WIP A/c	1,500
		By Factory OH Control A/c	2,000
		By Costing P & L A/c	
(Loss by fire)	150		
		By Balance c/d	12,830
	61,850		61,850

Material purchased for direct issue to production ₹ 1,135 will be debited to WIP Control A/c

Answer 3:

Dr.	Finished Goods Control A/c		Cr.
To Balance b/d	30,780	By Cost of Sales A/c See Note)	2,04,800
To WIP Control A/c	2,02,900	By Balance c/d (Bal. Fig.)	28,880
	2,33,680		2,33,680

Gross profit is 25% on factory cost, hence it is 20% on sales.

Cost of Sales = 2,56,000 – 20% (2,56,000) = 2,04,800

5. PROCESS & OPERATION COSTING

THEORY BASED	
Question No.	Answer
1	(d)
2	(b)
3	(b)
4	(b)
5	(c)
6	(d)
7	(a)
8	(b)
9	(a)
10	(b)
11	(a)
12	(b)
13	(c)
14	(b)
15	(d)

NUMERICAL BASED	
Question No.	Answer
1	(c)
2	(d)
3	(d)
4	(c)
5	(a)
6	(b)
7	(a)
8	(a)
9	(d)
10	(b)
11	(b)
12	(d)
13	(b)
14	(c)
15	(a)

6. JOINT PRODUCTS AND BY PRODUCTS

THEORY BASED	
Question No.	Answer
1	(a)
2	(a)
3	(d)
4	(c)
5	(a)
6	(b)
7	(b)
8	(a)
9	(c)
10	(c)
11	(c)
12	(a)
13	(a)
14	(a)
15	(b)

NUMERICAL BASED	
Question No.	Answer
1	(c)
2	(b)
3	(c)
4	(b)
5	(b)
6	(c)
7	(a)
8	(a)
9	(c)
10	(c)
11	(a)
12	(c)
13	(b)
14	(d)
15	(c)

7. SERVICE OR OPERATING COSTING

THEORY BASED	
Question No.	Answer
1	(d)
2	(a)
3	(d)
4	(a)
5	(a)
6	(a)
7	(c)
8	(c)
9	(d)
10	(d)
11	(d)
12	(a)
13	(d)
14	(d)
15	(c)
16	(c)

NUMERICAL BASED	
Question No.	Answer
1	(b)
2	(b)
3	(d)
4	(c)
5	(a)
6	(b)
7	(b)
8	(b)
9	(b)
10	(c)
11	(d)
12	(b)
13	(b)
14	(c)

8. MATERIAL COST CONTROL, STOCK VALUATION AND STOCK CONTROL

THEORY BASED	
Question No.	Answer
1	(b)
2	(c)
3	(c)
4	(b)
5	(b)
6	(a)
7	(b)
8	(b)
9	(a)
10	(a)
11	(b)
12	(c)
13	(c)
14	(b)
15	(b)

NUMERICAL BASED	
Question No.	Answer
1	(c)
2	(a)
3	(d)
4	(b)
5	(b)
6	(c)
7	(d)
8	(b)
9	(c)
10	(a)
11	(b)
12	(d)
13	(b)
14	(d)
15	(a)
16	(c)
17	(b)
18	(d)
19	(c)
20	(a)

9. EMPLOYEE COST AND DIRECT EXPENSES

THEORY BASED	
Question No.	Answer
1	(d)
2	(c)
3	(a)
4	(c)
5	(d)
6	(c)
7	(a)
8	(d)
9	(a)
10	(b)
11	(b)
12	(d)
13	(d)
14	(a)
15	(b)

NUMERICAL BASED	
Question No.	Answer
1	(d)
2	(c)
3	(b)
4	(a)
5	(c)
6	(d)
7	(c)
8	(c)
9	(d)
10	(a)
11	(b)
12	(b)
13	(d)
14	(d)
15	(a)
16	(b)

10. UNIT & BATCH COSTING

THEORY BASED	
Question No.	Answer
1	(c)
2	(b)
3	(b)
4	(c)
5	(c)

NUMERICAL BASED	
Question No.	Answer
1	(c)
2	(d)
3	(b)
4	(b)
5	(d)

11. JOB COSTING

THEORY BASED	
Question No.	Answer
1	(b)
2	(b)
3	(d)
4	(d)
5	(a)
6	(b)
7	(b)
8	(b)
9	(c)
10	(c)

NUMERICAL BASED	
Question No.	Answer
1	(c)
2	(b)
3	(b)
4	(a)
5	(a)

12. BUDGET

THEORY BASED	
Question No.	Answer
1	(c)
2	(b)
3	(a)
4	(a)
5	(c)
6	(c)
7	(a)
8	(a)
9	(b)
10	(d)
11	(b)
12	(b)
13	(b)
14	(d)
15	(c)
16	(c)
17	(b)
18	(c)
19	(b)
20	(d)
21	(c)
22	(b)
23	(b)
24	(d)

NUMERICAL BASED	
Question No.	Answer
1	(b)
2	(c)
3	(d)
4	(c)
5	(a)
6	(a)
7	(d)
8	(b)

13. STANDARD COSTING

THEORY BASED	
Question No.	Answer
1	(b)
2	(b)
3	(a)
4	(c)
5	(d)
6	(d)
7	(b)
8	(a)
9	(d)
10	(b)
11	(a)
12	(b)
13	(b)

NUMERICAL BASED	
Question No.	Answer
1	(c)
2	(a)
3	(a)
4	(a)
5	(c)
6	(a)
7	(c)
8	(a)
9	(c)
10	(b)
11	(c)
12	(b)
13	(a)
14	(d)

14. MARGINAL COSTING

THEORY BASED	
Question No.	Answer
1	(b)
2	(b)
3	(b)
4	(a)
5	(c)
6	(d)
7	(a)
8	(d)
9	(a)
10	(d)
11	(c)
12	(a)
13	(c)
14	(d)
15	(b)

NUMERICAL BASED	
Question No.	Answer
1	(a)
2	(d)
3	(d)
4	(a)
5	(b)
6	(a)
7	(b)
8	(c)
9	(c)
10	(b)
11	(a)
12	(c)
13	(c)
14	(a)
15	(d)
16	(b)
17	(d)
18	(c)
19	(a)
20	(a)
21	(c)
22	(b)
23	(b)
24	(a)
25	(c)
26	(a)
27	(b)