

# Revisionary Test Paper\_Intermediate\_Syllabus 2008\_Jun2014

## Paper-8: Cost & Management Accounting

### Question.1

(i) In the following cases, one out of four answers is correct. You are required to indicate the correct answer.

(a) Budgeted sales for the next year is 5,00,000 units. Desired ending finished goods inventory is 1,50,000 units and equivalent units in ending W-I-P inventory is 60,000 units. The opening finished goods inventory for the next year is 80,000 units, with 50,000 equivalent units in beginning W-I-P inventory How many equivalent units should be produced

- (a) 5,80,000
- (b) 5,50,000
- (c) 5,00,000
- (d) 5,75,000

**Answer (a) – ₹ 5,80,000**

Using production related budgets, units to produce equals budgeted sales + desired ending finished goods inventory + desired equivalent units in ending W-I-P inventory – beginning finished goods inventory – equivalent units in beginning W-I-P inventory. Therefore, in this case, units to produce is equal to 5,00,000 + 1,50,000 + 60,000 – 80,000 – 50,000 = 5,80,000.

(b) The cost data pertaining to Product “X” of Xee Ltd. are as follows :

Maximum capacity	30,000 units
Normal capacity	15,000 units
Increase in inventory	1,880 units
Variable cost per unit	₹ 12
Selling price per unit	₹ 50
Fixed manufacturing overhead costs	₹ 3,60,000

If the profit under Absorption costing method is ₹ 1,01,000, the profit under Marginal costing method would be

- (a) ₹ 1,46,120
- (b) ₹ 1,23,560
- (c) ₹ 55,880
- (d) ₹ 73,340

**Answer (c) – ₹ 55,880**

Fixed cost per unit = ₹ 3,60,000 / 15,000 units = ₹ 24

Profit under absorption costing = ₹ 1,01,000

Adjustment of fixed manufacturing overhead costs of increased inventory = 1,880 units x ₹ 24 = ₹ 45,120

Profit under marginal costing = ₹ 1,01,000 – ₹ 45,120 = ₹ 55,880

(c) During the month of March, 560 kg. of material was purchased at a total cost of ₹ 15,904. The stocks of material increased by 15 kg. It is the company's policy to value the stocks at standard purchase price. If the material price variance was ₹ 224 (A), the standard price per kg. of material is.

- (a) ₹ 28.40
- (b) ₹ 28.80
- (c) ₹ 28.00
- (d) ₹ 29.20

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**Answer (c) – ₹ 28.00**

Actual cost		₹ 15,904
Less : adverse material price variance		224
Actual purchases at standard price		₹ 15,680
Standard price = ₹ 15,680	=	₹ 28
560 kg		

**(d) Akash Ltd. is preparing its cash budget for the period. Sales are expected to be ₹ 1,00,000 in April 2013, ₹2,00,000 in May 2013, ₹ 3,00,000 in June 2013 and ₹ 1,00,000 in July 2013. Half of all sales are cash sales, and the other half are on credit. Experience indicates that 70% of the credit sales will be collected in the month following the sale, 20% the month after that, and, 10% in the third month after the sale. The budgeted collection for the month of July 2013 is**

- (a) ₹ 1,30,000**
- (b) ₹ 1,80,000**
- (c) ₹ 2,60,000**
- (d) ₹ 3,60,000**

**Answer (b) – ₹ 1,80,000**

Collection from		
July 2013 cash sales will be half of total sales or		₹50,000
From April ₹ 50,000 of credit sales, collection should be 10% or		₹5,000
From May ₹ 1,00,000 of credit sales, collections should be 20% or		₹20,000
From June ₹ 1,50,000 of credit sales, collection will be 70% or		₹1,05,000
Thus total collections will amount to		₹ 1,80,000

**(e) ABC Ltd. is having 400 workers at the beginning of the year and 500 workers at the end of the year. During the year 20 workers were discharged and 15 workers left the organization. During the year the company has recruited 65 worker Of these, 18 workers were recruited in the vacancies of those leaving, while the rest were engaged for an expansion scheme. The labour turnover rate under separation method is :**

- (a) 22.20%**
- (b) 7.78%**
- (c) 4.00%**
- (d) 14.40%**

**Answer:**

**(b) - 7.78%**

$$\text{Average number of workers} = (400 + 500)/2 = 450$$

Separation method

$$= \frac{\text{No. of Separation during the period}}{\text{Av. no. of workers during the period}} \times 100$$

$$= \frac{20 + 15}{450} \times 100$$

$$= 7.78\%$$

**(ii) Match the statement in Column I with appropriate statement in Column II [1x5]**

Column I	Column II
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Debenture interest	Inventory management
JIT system	Cost Control
Standard costing	Does not involve any cash out flow
Notional cost	Semi-variable cost
Telephone charges	Item of reconciliation

Answer:

Column I	Column II
Debenture interest	Item of reconciliation
JIT system	Inventory management
Standard costing	Cost control
Notional cost	Does not involve any cash out flow
Telephone charges	Semi-variable cost

(iii) Fill in the blanks.

- (a) Activity-based Costing identifies the activities which cause cost to be incurred and trace.....of these activities.
- (b) Any Transfer Pricing system has to ensure that the allocation of resources is done in such a manner so as to promote.....of the organization.
- (c) Budget is a forecast of..... events.
- (d) An increase in sales price.....the BEP.
- (e) MRP is a production planning system that starts with.....

Answer:

- (a) Cost drivers
- (b) Goal congruence
- (c) Planned
- (d) Lowers
- (e) Master production schedule.

(iv) State whether the following statements are 'True' or 'False':

- (a) Budget is prepared by managers to fix their targets.
- (b) In Zero-based Budgeting, there is some reference made to the previous level of expenditure.
- (c) Transfer Pricing has significance for the purpose of measurement of divisional performance
- (d) TQM stresses on zero defects and doing it right first time.
- (e) Production cost efficiency alone is no guarantee of profit.

Answer:

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- (a) False.
- (b) False.
- (c) True.
- (d) True.
- (e) True.

### Question.2

(a) A factory incurred the following expenditure during the year 20112:

		₹
<b>Direct material consumed</b>		<b>15,00,000</b>
<b>Manufacturing Wages</b>		<b>10,00,000</b>
<b>Manufacturing overhead:</b>		
<b>Fixed</b>	<b>4,00,000</b>	
<b>Variable</b>	<b>3,50,000</b>	<b>7,50,000</b>
		<b>32,50,000</b>

In the year 2013, following changes are expected in production and cost of production.

- (i) Production will increase due to recruitment of 50% more workers in the factory.
  - (ii) Overall efficiency will decline by 10% on account of recruitment of new workers.
  - (iii) There will be an increase of 15% in Fixed overhead and 70% in Variable overhead.
  - (iv) The cost of direct material will be decreased by 5%.
  - (v) The company desire to earn a profit of 10% on selling price.
- Ascertain the cost of production and selling price.

**Answer:**

#### Budgeted Cost Sheet for the year 2013

Particulars			Amount ₹
Direct material consumed		15,00,000	
Add: 35% due to increased output		<u>5,25,000</u>	
		20,25,000	
Less: 5% for decline in price		<u>1,01,250</u>	19,23,750
Direct wages (manufacturing)		10,00,000	
Add: 50% increase		5,00,000	15,00,000
<b>Prime cost</b>			<b><u>34,23,750</u></b>
<b>Manufactured Overhead:</b>			
Fixed	4,00,000		
Add: 15% increase	<u>60,000</u>		
		4,60,000	
Variable	3,50,000		
Add: 70% increase	<u>2,45,000</u>		
		5,95,000	<u>10,55,000</u>
<b>Cost of production</b>			<b>44,78,750.00</b>
Add: 1/9 of Cost or 10% on selling price			4,97,638.88
<b>Selling price</b>			<b>49,76,388.88</b>

Production will increase by 50% but efficiency will decline by 10%.

$$150 - 10\% \text{ of } 150 = 135\%$$

So increase by 35%.

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**Note:** If we consider that variable overhead once will change because of increase in production (From 3,50,000 to 5,95,000) then with efficiency declining by 10% it shall be 5,35,500 and then again as mentioned in point No. (iii) of this question it will increase by 70% then variable overhead shall be ₹ 5,35,500 × 170% = 9,10,350. Hence, total costs shall be ₹ 47,94,100 and profit shall be 1/9<sup>th</sup> of ₹ 47,94,100 = 5,32,678. Thus, selling price shall be 53,26,778.

### (b) What are the essential features of an effective Wage Plan?

**Answer:**

The essential features of an effective Wage Plan may be enumerated as follows:

- (i) It should be based upon scientific time and motion study to ensure a fair output and a fair remuneration.
- (ii) There should be guaranteed minimum wages at a satisfactory level.
- (iii) The wages should be related to the effort put in by the employee. It should be fair to both the employees and employer.
- (iv) The scheme should be flexible to permit any necessary variations which may arise.
- (v) There must be continuous flow of work. After completing one piece, the workmen should be able to go over to the next without waiting.
- (vi) After a certain stage, the increase in production must yield decreasing rate so as to discourage very high production which may involve heavy rejections.
- (vii) The scheme should aim at increasing the morale of the workers and reducing labour turnover.
- (viii) The scheme should not be in violation of any local or national trade agreements.
- (ix) The operating and administrative cost of the scheme should be kept at a minimum.

### Question.3

#### (a) What are the steps that need to be undertaken for making reporting of variances more effective? Name some variance reporting ratios.

**Answer:**

In order that variance reporting should be effective, it is essential that the following requisites are fulfilled:

- (i) The variances arising out of each factor should be correctly segregated. If part of a variance due to one factor is wrongly attributed to or merged with that of another, the analysis report submitted to the management would be misleading and wrong conclusions may be drawn from it.
- (ii) Variances, particularly the controllable variances should be reported with promptness as soon as they occur. Mere operation of Standard Costing and reporting of variances is of no avail. The success of a Standard Costing system depends on the extent of responsibility which the management assumes in correcting the conditions which cause variances from standard. In order to assist the management in assuming this responsibility, the variances should be reported frequently and on time. This would enable corrective action being taken for future production while work is in progress and before the project or job is completed.
- (iii) For effective control, the line of organization should be properly defined and the authority and responsibility of each individual should be laid down in clear terms. This will avoid 'passing on the buck' and shirking of responsibility and will enable the tracing of the causes of variances to the appropriate levels of management.
- (iv) In certain cases, a particular variance may be the joint responsibility of more than one individual or department. It is obvious that if corrective action has to be effective in

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such cases, it should be taken jointly.

- (v) Analysis of uncontrollable variances should be made with the same care as for controllable variances. Though a particular variance may not be controllable at the lower level of management, a detailed analysis of the off-standard situation may reveal far reaching effects on the economy of the concern. This should compel the top management to take corrective action, say, by changing the policy which gave rise to the uncontrollable variance.

A number of ratios are used for reporting to the management the effective use of capacity, material, labour and other resources of a concern. Some of them are named below:

- (i) Efficiency Ratio.
- (ii) Activity Ratio.
- (iii) Calendar Ratio.
- (iv) Capacity Usage Ratio
- (v) Capacity Utilization Ratio.
- (vi) Idle Time Ratio

- (b) A transport company has a fleet of three trucks of 10 tonnes capacity each plying in different directions for transport of customer's goods. The trucks run loaded with goods and return empty. The distance travelled, number of trips made and the load carried per day by each truck are as under:

Truck No.	One way Distance Km	No. of trips per day	Load carried per trip / day tonnes
1	16	4	6
2	40	2	9
3	30	3	8

The analysis of maintenance cost and the total distance travelled during the last two years is as under:

Year	Total distance travelled	Maintenance Cost ₹
1	1,60,200	46,050
2	1,56,700	45,175

The following are the details of expenses for the year under review:

- Diesel : ₹ 10 per litre. Each litre gives 4 km per litre of diesel on an average.
- Driver's salary : ₹ 2,000 per month
- Licence and taxes : ₹ 5,000 per annum per truck
- Insurance : ₹ 5,000 per annum for all the three vehicles.
- Purchase Price per truck : ₹ 3,00,000 Life 10 years. Scrap value at the end of life is ₹ 10,000.
- Oil and sundries : ₹ 25 per 100 km run.
- General Overhead : ₹ 11,084 per annum

The vehicles operate 24 days per month on an average.

Required:

- (i) Prepare an Annual Cost Statement covering the fleet of three vehicles.
- (ii) Calculate the cost per km. run.
- (iii) Determine the freight rate per tonne km. to yield a profit of 10% on freight

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### Answer

#### (i) Annual Cost Statement of three vehicles

	₹
Diesel	3,36,960
(Refer to working note 1)	
(1,34,784 kms / 4 km) × ₹ 10	
Oil & sundries	33,696
(1,34,784 kms/100 kms) × ₹ 25	
Maintenance	39,696
(Refer to working note 2)	
{(1,34,784 kms × 0.25P) + ₹ 6,000}	
Drivers' salary	72,000
(₹ 2,000 × 12 months) × 3 trucks	
Licence and taxes	15,000
Insurance	5,000
Depreciation	87,000
(₹ 2,90,000/10 years) × 3 trucks	
General overhead	<u>11,084</u>
Total annual cost	<u>6,00,436</u>

#### (ii) Cost per km. run

$$\begin{aligned} \text{Cost per kilometer run} &= \frac{\text{Total annual cost of vehicles}}{\text{Total kilometre travelled annually}} \\ \text{(Refer to working note 1)} &= \frac{\text{₹ 6,00,436}}{1,34,784 \text{ Kms}} = \text{Rs.4.4548} \end{aligned}$$

#### (iii) Freight rate per tonne km (to yield a profit of 10% on freight)

$$\begin{aligned} \text{Cost per tonne km.} &= \frac{\text{Total annual cost of three vehicles}}{\text{Total effective tonnes kms. per annum}} \\ \text{(Refer to working note 1)} &= \frac{\text{₹ 6,00,436}}{5,25,312 \text{ kms}} = \text{₹ 1.143} \\ \text{Freight rate per tonne km.} &= \text{₹ 1.27 since, } \left( \frac{1.143}{9} \right) \times 10 \end{aligned}$$

### Working notes:

#### 1. Total kilometre travelled and tonnes kilometre (load carried) by three trucks in one year

Truck number	One way distance in kms	No. of trips	Total distance covered in km per day	Load carried per trip / day in tonnes	Total effective tonnes km
1	16	4	128	6	384
2	40	2	160	9	720
3	30	3	<u>180</u>	8	<u>720</u>
Total			468		1824

Total kilometre travelled by three trucks in one year 1,34,784  
(468 kms × 24 days × 12 months)

Total effective tonnes kilometre of load carried by three trucks during one year 5,25,312

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(1,824 tonnes km × 24 days × 12 months)

### 2. Fixed and variable component of maintenance cost:

$$\begin{aligned}\text{Variable maintenance cost per km} &= \frac{\text{Difference in maintenance cost}}{\text{Difference in distance travelled}} \\ &= \frac{\text{₹ 46,050} - \text{₹ 45,175}}{1,60,200 \text{ kms} - 1,56,700 \text{ kms}} \\ &= \text{₹ 0.25} \\ \text{Fixed maintenance cost} &= \text{Total maintenance cost} - \text{Variable maintenance cost} \\ &= \text{₹ 46,050} - 1,60,200 \text{ kms} \times 0.25\end{aligned}$$

### Question.4

#### (a) State the scope and advantages of Uniform Costing.

#### Answer:

##### Scope of Uniform Costing:

Uniform costing methods may be advantageously applied:

- (i) In a single enterprise having a number of branches or units, each of which may be a separate manufacturing unit.
- (ii) In a number of concerns in the same industry bound together through a trade association or otherwise, and
- (iii) In industries which are similar in nature such as gas and electricity, various types of transport, and cotton, jute and woolen textiles.

The need for application of Uniform Costing System exists in a business, irrespective of the circumstance and conditions prevailing therein. In concerns which are members of a trade association, the procedure for Uniform Costing may be devised and controlled by the association or by any other central body specially formed for the purpose.

##### Advantages of Uniform Costing:

Main advantages of a Uniform Costing System are summarized below:

- (i) It provides comparative information to the members of the organization / association which may be used by them to reduce or eliminate the evil effects of competition and unnecessary expenses arising from competition.
- (ii) It enables the industry to submit the statutory bodies reliable and accurate data which might be required to regulate pricing policy or for other purposes.
- (iii) It enables the member concerns to compare their own cost data with that of the others detect the weakness and to take corrective steps for improvement in efficiency.
- (iv) The benefits of research and development can be passed on the smaller members of the association leading to benefit of the industry as a whole.
- (v) It provides all valuable features of sound cost accounting such as valued and efficiency of the workers, machines, methods, etc., current reports of comparing major cost items with the predetermined standards, etc.
- (vi) It serves as a prerequisite to Cost Audit and inter firm comparison.
- (vii) Uniform Costing is a useful tool for management control. Performance of individual units can be measured against norms set for the industry as a whole.
- (viii) It avoids cut-throat competition by ensuring that competition among member units proceeds on healthy lines.
- (ix) The process of pricing policy becomes easier when Uniform Costing is adopted.
- (x) By showing the one best way of doing things, Uniform Costing creates cost



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consciousness and provides the best system of cost control and cost presentation in the entire industry.

- (xi) Uniform costing simplifies the work of wage boards set up to fix minimum wages and fair wages for an industry.

- (b) company undertook a contract for construction of a large building complex. The construction work commenced on 1<sup>st</sup> April 2013 and the following data are available for the year ended 31<sup>st</sup> March 2014.

	₹ '000
Contract Price	35,000
Work certified	20,000
Progress Payments Received	15,000
Materials Issued to Site	7,500
Planning & Estimating costs	1,000
Direct Wages Paid	4,000
Materials Returned From Site	250
Plant Hire Charges	1,750
Wage Related Costs	500
Site Office Costs	678
Head Office Expenses Apportioned	375
Direct Expenses Incurred	902
Work Not Certified	149

The contractors own a plant which originally cost ₹20 lacs has been continuously in use in this contract throughout the year. The residual value of the plant after 5 years of life is expected to be ₹ 5 lacs. Straight line method of depreciation is in use.

As on 31<sup>st</sup> March, 2014 the direct wages due and payable amounted to ₹ 2,70,000 and the materials at site were estimated at ₹ 2,00,000.

Required:

- (i) Prepare the contract account for the year ended 31<sup>st</sup> March, 2014.
- (ii) Show the calculation of profit to be taken to the profit and loss account of the year.
- (iii) Show the relevant balance sheet entries

**Answer**

(i)

Dr.	Contract A/c ₹'000		Cr. ₹'000
To Materials issued	7,500	By Materials	250
To Direct wages paid	4,000	returned	200
To Direct wages accrued	270	By Materials at site	
To Wage related costs	500	By Work-in-progress c/d	20,000
To Direct expenses incurred	902	Work certified	149
To Plant hire charges	1,750	Work uncertified	
To Planning and estimating cost	1,000		
To Site Office costs	678		
To Head Office expenses apportioned	375		
To Plant depreciation	300		

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(Refer to Working Note 1)

To Notional Profit	3,324		
	<u>20,599</u>		<u>20,599</u>
To Profit and Loss A/c [See Ans. (ii) below]	1,662	By Notional profit b/d	3,324
To Work-in-progress c/d (Profit in reserve)	1,662		
	<u>3,324</u>		<u>3,324</u>
<b>01.04.2014</b>			
To Work in-progress b/d		By Work in-progress b/d	1662
Work certified	20,000	(Profit in reserve)	
Work uncertified	149		
To Materials at site	200		

**(ii) Profit to be transferred to Profit and Loss Account (Fig. in ₹'000)**

Since the Contract is between 50% and 90% completion, therefore, two-third of the notional profit, reduced by the proportion of cash received to work certified is to be transferred to profit and loss account as shown below:

$$= \frac{2}{3} \times \text{Notional Profit} \times \frac{\text{Cash Received}}{\text{Work Certified}}$$

$$= \frac{2}{3} \times ₹ 3,324 \times \frac{15,000}{20,000} = ₹ 1,662$$

**(iii) Balance Sheet (extract) as on 31<sup>st</sup> March, 2014**

Liabilities	₹'000	Assets	₹'000
Profit and Loss A/c	1,662	Plant at site (₹ 2,000 – ₹ 300)	1,700
Wages accrued	270	Materials at site	200
		Work-in-progress (Refer to Working Note 2)	3,487

**Working notes**

	₹ '000
<b>1. Plant depreciation</b>	
Original cost of Plant	2,000
Less: Residual value	<u>500</u>
Cost of plant used	1,500
Life of plant : 5 years	
Annual Depreciation (₹ 1,500/5)	300
<b>2. Work in-Progress</b>	20,149
Less: Profit in reserve	<u>1,662</u>
Difference	<u>18,487</u>
Less: Cash received	<u>15,000</u>
Net WIP	3,487

**Question.5**

**(a) A job can be executed either through workman M or N. M takes 32 hours to complete the job while N finishes it in 30 hour The standard time to finish the job is 40 hour**

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The hourly wage rate is same for both the worker In addition workman M is entitled to receive bonus according to Halsey plan (50%) sharing while N is paid bonus as per Rowan plan. The works overheads are absorbed on the job at ₹ 7.50 per labour hour worked. The factory cost of the job comes to ₹ 2,600 irrespective of the workman engaged.

Find out the hourly wage rate and cost of raw materials input. Also show cost against each element of cost included in factory cost.

**Answer**

**Working notes:**

1. Time saved and wages:

	M	N
Workmen	40	40
Standard time (hrs)	40	40
Actual time taken (hrs)	<u>32</u>	<u>30</u>
Time saved (hrs)	<u>08</u>	<u>10</u>
Wages paid @ ₹ x per hr. (₹)	32x	30x

2. Bonus Plan:

	Halsey	Rowan
Time saved (hrs)	8	10
Bonus (₹)	4x	7.5x
	$\left[ \frac{8 \text{ hrs} \times ₹ x}{2} \right]$	$\left[ \frac{10 \text{ hrs}}{40 \text{ hrs}} \times 30 \text{ hrs} \times ₹ x \right]$

3. Total wages:

Workman M:  $32x + 4x = ₹ 36x$

Workman N:  $30x + 7.5x = ₹ 37.5x$

**Let Material Cost be y**

**Statement of factory cost of the job**

	M	N
Workmen	₹	₹
Material cost	y	y
Wages	36x	37.5x
(Refer to working note 3)		
Works overhead	<u>240</u>	<u>225</u>
Factory cost	<u>2,600</u>	<u>2,600</u>

The above relations can be written as follows:

$$36x + y + 240 = 2,600 \quad \dots (i)$$

$$37.5x + y + 225 = 2,600 \quad \dots (ii)$$

Subtracting (i) from (ii) we get

$$1.5x - 15 = 0$$

$$\text{or } 1.5x = 15$$

$$\text{or } x = ₹ 10 \text{ per hour}$$

On substituting the value of x in (i) we get  $y = ₹ 2,000$

Hence the wage rate per hour is ₹ 10 and the cost of raw material input is ₹ 2,000 on the job.

**(b) What do you understand by the term 'pre-determined rate of recovery of overheads'? What are the bases that are usually advocated for such pre-determination? How do over-absorption and under-absorption of overheads arise and how are they disposed off in Cost Accounts?**

### Answer

The term 'pre-determined' rate of recovery of overheads' refers to a rate of overhead absorption. It is calculated by dividing the budgeted overhead expenses for the accounting period by the budgeted base for the period. This rate of overhead absorption is determined prior to the start of the activity; that is why it is called a 'pre-determined rate'. The use of the pre-determined rate of recovery of overheads enables prompt preparation of cost estimates and quotations and fixation of sales prices. For prompt billing on a provisional basis before completion of work, as for example in the case of cost plus contracts, pre-determined overhead rates are particularly useful.

**Bases Available:** The bases available for computing 'pre-determined rate of recovery of overheads' are given below:-

- (i) Rate per unit of output
- (ii) Direct labour cost method
- (iii) Direct labour hours method
- (iv) Machine hour rate method
- (v) Direct material cost method
- (vi) Prime cost method.

The choice of a suitable method for calculating 'pre-determined rate of recovery of overhead, depends upon several factors. Some important ones are- type of industry, nature of product and processes of manufacture, nature of overhead expenses, organisational set-up, policy of management etc.

**Reason for over/under absorption of overheads:** Over-absorption of overheads arises due to one or more of the following reasons.

- (ii) Improper estimation of overhead.
- (iii) Error in estimating the level of production.
- (iv) Unanticipated changes in the methods or techniques of production.
- (v) Under-utilisation of the available capacity.
- (vi) Seasonal fluctuations in the overhead expenses from period to period.

**Methods for absorbing under/over absorbed overheads:** The over-absorption and under-absorption of overheads can be disposed off in cost accounting by using any one of the following methods:

- (i) Use of supplementary rates
- (ii) Writing off to costing profit & loss Account
- (iii) Carrying over to the next year's account

(i) **Use of supplementary rates:** This method is used to adjust the difference between overheads absorbed and overhead actually incurred by computing supplementary overhead rates. Such rates may be either positive or negative. A positive rate is intended to add the unabsorbed overheads to the cost of production. The negative rate, however corrects the cost of production by deducting the amount of over-absorbed overheads. The effect of applying such a rate is to make the actual overhead get completely absorbed.

(ii) **Writing off to costing profit & loss account:** When over or under-absorbed amount is quite negligible and it is not felt worthwhile to absorb it by using supplementary rates, then the said amount is transferred to costing profit & loss Account. In case under-absorption of overheads arises due to factors like idle capacity, defective planning etc., it may also be transferred to costing profit & loss Account.

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- (iii) **Carrying over to the next year's account:** Under this method the amount of over/under absorbed overhead is carried over to the next period. This method is not considered desirable as it allows costs of one period to affect costs of another period. Further, comparison between one period and another is rendered difficult. Therefore, this method is not proper and has only a limited application. However, this method may be used when the normal business cycle extends over more than one year, or in the case of a new project, the output is low in the initial years.

### Question.6

- (a) **State the steps that can be undertaken to increase the throughput.**

#### Answer:

The theory of constraints is applied within an organisation by following what are called 'the five focusing steps.' These are a tool that Goldratt developed to help organisations deal with constraints, otherwise known as bottlenecks, within the system as a whole (rather than any discrete unit within the organisation.) These steps may be followed to increase the throughput. The steps are as follows:

- (i) Identify the bottle neck in the system i.e., identification of the limiting factor of the production (or) process such as installing capacity or hours etc.
  - (ii) Decide how to exploit the systems bottleneck that means bottleneck resource should be actively and effectively used as much as possible to produce as many goods as possible.
  - (iii) Subordinate everything else to the decision made in step (b). The production capacity of the bottleneck resource should determined production schedule.
  - (iv) Augment the capacity of the bottleneck resource with the minimum capital input.
  - (v) Identify the new bottlenecks in the process and repeat the same above steps to address the bottlenecks.
- (b) **XYZ Bank is examining the profitability of its Premier Account, a combined Savings and Cheque account. Depositors receive a 7% annual interest on their average deposit. XYZ Bank earns an interest rate spread of 3% (the difference between the rate at which it lends money and rate it pays to depositors) by lending money for home loan purpose at 10%. The Premier Account allows depositors unlimited use of services such as deposits, withdrawals, cheque facility, and foreign currency drafts. Depositors with Premier Account balances of ₹ 50,000 or more receive unlimited free use of services. Depositors with minimum balance of less than ₹ 50,000 pay ₹ 1,000-a-month service fee for their Premier Account. XYZ Bank recently conducted an activity-based costing study of its services. The use of these services in 2013-14 by three customers is as follows:**

	Activity- Based Cost Per Transaction	Account Usage		
		Customer A	Customer B	Customer C
Deposits/withdrawal with teller	₹ 125	40	50	5
Deposits/withdrawal with automatic teller machine (ATM)	₹ 40	10	20	16

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Deposits/withdrawal on pre-arranged monthly basis	₹ 25	0	12	60
Bank Cheques written	₹ 400	9	3	2
Foreign Currency drafts	₹ 600	4	1	6
Inquiries about Account balance	₹ 75	10	18	9
Average Premier Account balance for 2005-06		₹ 55,000	₹ 40,000	₹ 12,50,000

Assume Customer A and C always maintains a balance above ₹ 50,000, whereas Customer B always has a balance below ₹ 50,000.

Required:

- (i) Compute the 2013-14 profitability of the customers A, B and C Premier Account at XYZ Bank.
- (ii) What evidence is there of cross-subsidisation among the three Premier Accounts? Why might XYZ Bank worry about this Cross-subsidisation, if the Premier Account product offering is Profitable as a whole?
- (iii) What changes would you recommend for XYZ Bank's Premier Account?

Answer:

(i)

### Customer Profitability Analysis

Activity	Activity based cost	Customers		
		A	B	C
		₹	₹	₹
Deposits/withdrawal with teller	125	5,000 (40 × 125)	6,250 (40 × 125)	625 (5 × 125)
Deposits/withdrawal with ATM	40	400 (10 × 40)	800 (20 × 40)	640 (16 × 40)
Deposits/withdrawal on prearranged monthly basis	25	0 (0 × 25)	300 (12 × 25)	1,500 (60 × 25)
Bank cheques written	400	3,600 (9 × 400)	1,200 (3 × 400)	800 (2 × 400)

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Foreign currency drafts	600	2,400 (4 × 600)	600 (1 × 600)	3,600 (6 × 600)
Inquiries about Account balance	75	750 (10 × 75)	1,350 (18 × 75)	675 (9 × 75)
<b>Customer cost (A)</b>		<b>12,150</b>	<b>10,500</b>	<b>7,840</b>
Spread on Average balance maintained	3%	1,650 (3% × 55,000)	1,200 (3% × 40,000)	37,500 (3% × 12,50,000)
Service fee	₹ 1,000 p.m.		12,000	
<b>Customer benefit</b>		<b>1,650</b>	<b>13,200</b>	<b>37,500</b>

### Customers

	<b>A</b>	<b>B</b>	<b>C</b>
Customer Profitability (Benefits – Costs)	₹ (10,500)	₹ 2,700	₹ 29,660

- (ii) Customer C is most profitable and is cross-subsidising the most demanding customer A. Customer B is paying for the services used, because of not being able to maintain minimum balance. No doubt, 'Premier Account' product offering is profitable as a whole, but the worry is of not finding customers like customer C who will maintain a balance higher than the stipulated minimum. It appears, the minimum balance stipulated is inadequate considering the services availed by depositors in 'Premium Account'.
- (iii) The changes suggested to XYZ Bank's 'Premier Account' are as follows:
- Increase the requirement of minimum balance from ₹ 50,000 to ₹ 1,00,000.
  - Charge for value added services like Foreign Currency Drafts.
  - Do not allow deposits/withdrawal below ₹ 10,000 at the teller. Only ATM machine withdrawal be allowed.
  - Inquiries about account balance to be entertained only through Phone Banking/ATM.

### Question.7

- (a) A company uses three raw materials P, Q and R for a particular product for which the following data apply:-

Raw Material	Usage per unit of product (Kgs)	Re-order Quantity (Kgs)	Price per Kg	Delivery in period (in weeks)			Re-order level (Kgs)	Minimum level (Kgs)
				Mini mum	Average	Maxi- mum		
P	10	10,000	0.10	1	2	3	8,000	
Q	4	5,000	0.30	3	4	5	4,500	
R	6	10,000	0.15	2	3	4		2,000

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Weekly production varies from 175 to 225 units, averaging 200 units of the said product. What would be the following quantities:-

- (i) Minimum Stock of P
- (ii) Maximum Stock of Q
- (iii) Re-order level of R
- (iv) Average Stock level of P.

**Answer:**

- (i) Minimum stock level of P  
 = Reorder Level - (Normal Usage x Avg. Delivery Time)  
 = 8,000 kgs - {(200 units x 10 kg) x 2 weeks} = 4,000 kgs.
  
- (ii) Maximum stock of Q  
 = Reorder Level + Reorder Quantity - Minimum consumption to obtain delivery  
 = 4,500 kgs + 5,000 kgs - (175 units x 4 kgs x 3 weeks) = 7,400 kgs.
  
- (iii) Reorder Level of R  
 Maximum reorder period x Maximum usage  
 = 4 weeks x (225 units x 6 kgs) = 5400 kgs.  
 OR  
 = Min. stock + (Avg. rate of consumption x Avg. Delivery Period)  
 = 2,000 kgs + {(200 x 6) x 3 weeks} = 5,600 kgs.
  
- (iv) Average stock level of P  
 Minimum level + 1/2 Reorder Quantity  
 4,000 kgs + 1/2 x 10,000 = 9,000 kgs.  
 OR  
 (Minimum stock + Maximum stock) ÷ 2  
 (4,000 + 16,250)\* ÷ 2 = 10,125 kgs.  
 (Reorder Level + Reorder Quantity) - (Min. consumption x Minimum Reorder Period).  
 8,000 + 10,000 kg - {(175 x 10 x 1} = 16,250 kgs

- (b) From the following details of stores receipts and issues of material "EXE" in a manufacturing unit, prepare the Store Ledger using Weighted Average Method of valuing the issues.

Nov. 1	Opening stock 2,000 units @ ₹ 5.00 each
Nov. 3.	Issued 1,500 units to production
Nov. 4.	Received 4,500 units @ ₹ 6.00 each
Nov. 8.	Issued 1,600 units to production'
Nov. 9.	Returned to stores 100 units by Production Department (from the issues of Nov. 3)
Nov. 16.	Received 2,400 units @ ₹ 6.50 each
Nov. 19.	Returned to supplier 200 units out of the quantity received on Nov. 4
Nov. 20.	Received 1,000 units @ ₹ 7.00 each Issued
Nov. 24.	Issued to production 2,100 units
Nov. 27.	Received 1,200 units @ ₹ 7.50 each
Nov. 29.	Issued to production, 2,800 units. (Use rates up to two decimal places).

**Answer:**

**Stores Ledger (Weighted Average Method)**

Date	Receipts			Issues			Stock		
	Qty.	Rate	Amount	Qty.	Rate	Amount	Qty.	Rate	Amount
Nov.		₹	₹		₹	₹		₹	₹



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1							2,000	5.00	10,000
3				1,500	5.00	7,500	500	5.00	2,500
4	4,500	6.00	27,000				5,000	5.90	29,500
8				1,600	5.90	9,440	3,400	5.90	20,060
9	100	5.00	500				3,500	5.87	20,560
16	2,400	6.50	15,600				5,900	6.13	36,160
19				200	6.00*	1,200	5,700	6.13	34,960
20	1,000	7.00	7,000				6,700	6.26	41,960
24				2,100	6.26	13,146	4,600	6.26	28,814
27	1,200	7.50	9,000				5,800	6.52	37,814
29				2,800	6.52	18,256	3,000	6.52	19,558

\* Returned to supplier out of the quantity received on Nov. 4

### Question.8

(a) Define Activity Based Costing. State its objectives and limitations.

Answer:

#### Activity Based Costing:

**Definition:-** CIMA defines Activity Based Costing as, 'cost attribution to cost units on the basis of benefit received from indirect activities e.g. ordering, setting up, assuring quality.' Another definition of Activity Based Costing is, 'the collection of financial and operational performance information tracing the significant activities of the establishment to product costs.'

#### Objectives of Activity Based Costing

- (i) To remove the distortions in computation of total costs as seen in the traditional costing system and bring more accuracy in the computation of costs of products and services.
- (ii) To help in decision making by accurately computing the costs of products and services.
- (iii) To identify various activities in the production process and further identify the value adding activities.
- (iv) To distribute overheads on the basis of activities.
- (v) To focus on high cost activities.
- (vi) To identify the opportunities for improvement and reduction of costs.
- (vii) To eliminate non value adding activities.

#### Limitations of Activity Based Costing:

- (i) Activity Based Costing is a complex system and requires lot of records and tedious calculations.
- (ii) For small organisations, traditional cost accounting system may be more beneficial than Activity Based Costing due to the simplicity of operation of the former.
- (iii) Sometimes it is difficult to attribute costs to single activities as some costs support several activities.
- (iv) There is a need of trained professionals who are limited in number.
- (v) This system will be successful if there is a total support from the top management.
- (vi) Substantial investment of time and money is required for the implementation of this system.

(b) A Ltd. Manufacturers and markets a single product. The following information is available :

(₹ Per Unit)

**Materials**

**8.00**

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Conversion cost (variable)	6.00
Dealer's margin	2.00
Selling price	20.00
Fixed cost : ₹ 2,50,000; Present sales : 80,000 units; Capacity utilisation : 60%	

There is acute competition. Extra efforts are necessary to sell. Suggestions have been made for increasing sales : (i) by reducing sales price by 5% and (ii) by increasing dealer's margin by 25% over the existing rate. Which of the two suggestions would you recommend if the company desires to maintain the present profit? Give reasons.

**Answer**

Calculation of present profit		₹
Selling price per unit	A	20.00
Material cost per unit		8.00
Conversion cost per unit		6.00
Dealer's margin per unit		2.00
Variable cost per unit	B	16.00
Contribution per unit	A – B	4.00
Total contribution	(₹ 4 x 80,000 units)	3,20,000
Less: fixed cost		<u>2,50,000</u>
Profit		70,000

The present profit can be maintained by keeping total contribution at present level of ₹ 3,20,000

(i) Reducing sales price by 5%

New selling price per unit	=	20 – 1	=	₹ 19.00
New dealer's margin per unit	=	19 x 10/100	=	₹ 1.90
New variable cost per unit	=	8 + 6 + 1.90	=	₹ 15.90
New contribution per unit	=	19.00 – 15.90	=	₹ 3.10

**Desired sales (units) to maintain the present level of profit:**

$$= \frac{\text{Desired contribution}}{\text{New contribution per unit}} = \frac{3,20,000}{3.10} = 1,03,226 \text{ units}$$

(ii) Increasing dealer's margin by 25%

New dealer's margin per unit	=	2 + 25% of 2	=	₹ 2.50
New variable cost per unit	=	8 + 6 + 2.50	=	₹ 16.50
New contribution per unit	=	20.00 – 16.50	=	₹ 3.50

**Desired sales (units) required to maintain the present level of profit**

$$= \frac{\text{Desired contribution}}{\text{New contribution per unit}} = \frac{3,20,000}{3.50} = 91,429 \text{ units}$$

Analysis: From the analysis of the above it is observed that, Break-even Point is lower under Second Proposal and hence, second proposal is recommended.

**Question.9**

(a) A pharmaceutical drug manufacturing company's three products A, B and C emerge at a single split off stage in department P. Product A is further processed in department Q, product B in department R and product A and product C in department S. There is no loss in further Processing of any of the three products. The cost data for a month are as under:

Cost of raw materials introduced in department P	₹ 12,68,800
Direct Wages Department	₹
P	3,84,000
Q	96,000

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R	64,000
S	36,000

Factory overheads of ₹ 4,64,000 are to be apportioned to the departments on direct wage basis.

During the month under reference, the company sold all three products after processing them further as under:

Products	A	B	C
Output sold kg.	44,000	40,000	20,000
Selling Price per kg. ₹	32	24	16

There are no Opening or Closing Stocks if these products were sold at the split off stage, that is, without further processing, the selling prices would have been ₹ 20, ₹ 22 and ₹ 10 each per kg respectively for A, B and C.

Required:

- (i) Prepare a statement showing the apportionment of joint costs to joint products:
- (ii) Present a statement showing product-wise and total profit for the month under reference as per the company's current processing policy.
- (iii) What processing decision should have been taken to improve the profitability of the company?
- (iv) Calculate the product-wise and total profit arising from your recommendation in (iii) above.

### Answer

#### (i) Statement showing the apportionment of joint costs to joint products

	Products			Total
	A	B	C	
Output sold Kgs.: (I)	44,000	40,000	20,000	
Selling price per kg. at split off (₹): (II)	20	22	10	
Sales value at split off (₹): (I) x (II)	8,80,000	8,80,000	2,00,000	19,60,000
Joint costs (costs incurred in department P (₹))	8,80,000	8,80,000	2,00,000	19,60,000
(apportioned on the basis of sales value at the point of split off) i.e. (22:22:5)				

#### (ii) Statement showing product-wise and total profit for the month under reference (as per the company's current processing policy)

	Products			Total
	A	B	C	
Output Kgs.: (a)	44,000	40,000	20,000	
Selling price per kg. after further processing (₹): (b)	32	24	16	
Sales value after further processing (Rs):	14,08,000	9,60,000	3,20,000	26,88,000
(c) = {(a) x (b)}				
Joint costs (₹): (d)	8,80,000	8,80,000	2,00,000	19,60,000
(Refer to b (i) working notes & 2(i))				
Further processing costs (₹): (e)	<u>1,72,800</u>	<u>1,15,200</u>	<u>64,800</u>	<u>3,52,800</u>
(Refer to working note 2 (ii))				
Total costs (₹): (f) = [(d) + (e)]	10,52,800	9,95,200	2,64,800	23,12,800
Profit/ (Loss) (₹): [(c)– (f)]	<u>3,55,200</u>	<u>(35,200)</u>	<u>55,200</u>	<u>3,75,200</u>

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**Alternatively:**

Incremental sales revenue (₹)	5,28,000	80,000	1,20,000
	(44,000 units x ₹ 12	(40,000 units x ₹ 2)	(20,000 units x ₹ 6)
Less: Further processing costs (₹): [Refer to working note 2 (ii)]	<u>1,72,800</u>	<u>1,15,200</u>	<u>64,800</u>
Incremental net profit / (loss)	3,55,200	(35,200)	55,200

**(iii) Processing decision to improve the profitability of the company.**

44,000 units of product A and 20,000 units of product C should be further processed because the incremental sales revenue generated after further processing is more than the further processing costs incurred. 40,000 units of product B should be sold at the point of-split off because the incremental revenue generated after further processing is less than the further processing costs.

**(iv) The product wise and total profit arising from the recommendation in (iii) above is as follows:**

Product Profit (₹)	A 3,55,200	B --	C 55,200	Total 4,10,400
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**Working notes:**

1.

**Statement of department-wise costs**

	P ₹	Q ₹	R ₹	S ₹
Raw materials	12,68,800			
Wages	3,84,000	96,000	64,000	36,000
Overheads (Apportioned on the basis of departmental direct wages i.e. 96:24:16:9)	3,07,200	76,800	51,200	28,800
<b>Total Cost</b>	<b>19,60,000</b>	<b>1,72,800</b>	<b>1,15,200</b>	<b>64,800</b>

**2. Joint costs and further processing costs**

- (i) Costs incurred in the department P are joint costs of products A, B and C and are equal to ₹ 19,60,000.
- (ii) Costs incurred in the departments Q, R and S are further processing costs of products A, B and C respectively. Further processing costs of products A, B and C thus are ₹ 1,72,800; ₹ 1,15,200 and ₹ 64,800 respectively.

**(b) Discuss the procedure for Job Cost Accounting.**

**Answer:**

On receipt of an order from the customer or an indication from the sales department for manufacturing a particular product, the production planning department prepares a suitable design for the product or job. It also works out the requirements of materials for the product and prepares a list of operations indicating the various operations to be carried out and their sequence, and the shops, departments, plants or machines to be entrusted with each of the operations.

A Production Order is issued giving instructions to the shops to proceed with the manufacture of the product. The production order constitutes the authority for work.

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Usually a production order contains all relevant information regarding production, such as detailed particulars of the job or product, the quantity or units to be manufactured, date of start of production, probable date of completion, details of materials required as per the bill of materials, the operations and the various shops involved in performing them and the route of the job should take.

The production order usually lays down only the quantities of materials required and the time allowed for the operations, but the values of materials and labour are also sometimes indicated. In the later case, the production order serves the combined purpose of an order for manufacture as well as the cost sheet on which the cost of the order is compiled.

The production order also provides for the material and labour on account of normal wastage or spoilage of the product in the final stage or during the various stages of manufacture.

Production orders may, in general, be of three types:

- (i) Assembly type of order.
- (ii) Sub-assembly type of order.
- (iii) Components or parts production type.

**(i) Assembly type of order:**

Where components are purchased and assembled into a product in the factory. A production order for assembly only is required.

**(ii) Sub-assembly type of order:**

Components are purchased and sub-assemblies and assemblies are made in the factory. Production orders for each sub-assembly and final assembly will be necessary.

**(iii) Components or parts production type:**

Components are manufactured and sub-assembled and the sub-assemblies are assembled into the final product. Separate production orders for each component, sub-assembly and final assembly are issued.

### Question.10

- (a) A factory has three production departments: The policy of the factory is to recover the production overheads of the entire factory by adopting a single blanket rate based on the percentage of total factory overheads to total factory wages. The relevant data for a month are given below:

Department	Direct Material (₹)	Direct Wages (₹)	Factory Overheads (₹)	Direct Labour Hour	Machine Hours
<b>Budget</b>					
Machining	6,50,000	80,000	3,60,000	20,000	80,000
Assembly	1,70,000	3,50,000	1,40,000	1,00,000	10,000
Packing	1,00,000	70,000	1,25,000	50,000	-----
<b>Actual</b>					
Machining	7,80,000	96,000	3,90,000	24,000	96,000
Assembly	1,36,000	2,70,000	84,000	90,000	11,000
Packing	1,20,000	90,000	1,35,000	60,000	

The details of one of the representative jobs produced during the month are as under:

**Job No. 100**

Department	Direct Material (₹)	Direct Wages (₹)	Direct Labour Hour	Machine Hours
Machining	1,200	240	60	180
Assembly	600	360	120	30
Packing	300	60	40	—

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The factory adds 30% on the factory cost to cover administration and selling overheads and profit.

Required:

- (i) Calculate the overhead absorption rate as per the current policy of the company and determine the selling price of the Job No. 100.
- (ii) Suggest any suitable alternative method(s) of absorption of the factory overheads and calculate the overhead recovery rates based on the method(s) so recommended by you.
- (iii) Determine the selling price of Job 100 based on the overhead application rates calculated in (ii) above.
- (iv) Calculate the department wise and total under or over recovery of overheads based on the company's current policy and the method(s) recommended by you.

Answer

- (i) Computation of overhead absorption rate  
(As per the current policy of the company)

Department	Budgeted Factory Overheads (₹)	Budgeted Direct Wages (₹)
Machinery	3,60,000	80,000
Assembly	1,40,000	3,50,000
Packing	<u>1,25,000</u>	<u>70,000</u>
Total	<u>6,25,000</u>	<u>5,00,000</u>

$$\begin{aligned}
 \text{Overhead absorption rate} &= \frac{\text{Budgeted factory overheads}}{\text{Budgeted direct wages}} \times 100 \\
 &= \frac{\text{₹ } 6,25,000}{\text{₹ } 5,00,000} \times 100 \\
 &= 125\% \text{ of Direct wages}
 \end{aligned}$$

### Selling price of the Job No. 100

	₹
Direct Materials	2,100.00
(₹ 1,200 + ₹ 600 + ₹ 300)	
Direct Wages	660.00
(₹ 240 + ₹ 360 + ₹ 60)	
Overheads	<u>825.00</u>
(125% × ₹ 660)	
Total factory cost	3,585.00
Add: Mark-up	<u>1,075.50</u>
Selling price	<u>4,660.50</u>

- (ii) Methods available for absorbing factory overheads and their overhead recovery rates in different departments.

#### 1. Machining Department

In the Machining department, the use of machine time is the predominant factor of production. Hence machine hour rate should be used to recover overheads in this department. The overhead recovery rate based on machine hours has been calculated as under:

$$\text{Machine hour rate} = \frac{\text{Budgeted factory overheads}}{\text{Budgeted machine hours}}$$

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$$\begin{aligned}
 &= \frac{\text{₹ } 3,60,000}{80,000 \text{ hours}} \\
 &= \text{₹ } 4.50 \text{ per hour}
 \end{aligned}$$

### 2. Assembly Department

In this department direct labour hours is the main factor of production. Hence direct labour hour rate method should be used to recover overheads in his department. The overheads recovery rate in this case is:

$$\begin{aligned}
 \text{Direct labour hour rate} &= \frac{\text{Budgeted factory overheads}}{\text{Budgeted direct labour hours}} \\
 &= \frac{\text{₹ } 1,40,000}{1,00,000 \text{ hours}} \\
 &= \text{₹ } 1.40 \text{ per hour}
 \end{aligned}$$

### 3. Packing Department

Labour is the most important factor of production in this department. Hence direct labour hour rate method should be used to recover overheads in this department. The overhead recovery rate in this case comes to:

$$\begin{aligned}
 \text{Direct labour hour rate} &= \frac{\text{Budgeted factory overhead}}{\text{Direct labour hours}} \\
 &= \frac{\text{₹ } 1,25,000}{50,000 \text{ hours}} \\
 &= \text{₹ } 2.50 \text{ per hour}
 \end{aligned}$$

### (iii) Selling price of Job 100

[based on the overhead application rates calculated in (ii) above]

	₹
Direct materials	2,100.00
Direct wages	660.00
Overheads (Refer to Working Note)	1,078.00
Factory cost	3,838.00
Add: Mark up (30% of ₹ 3,838)	1,151.40
Selling Price	4,989.40

### Working Note

#### Overhead Summary Statement

Dept.	Basis	Hours	Rate ₹	Overheads ₹
Machining	Machine hour	180	4.50	810
Assembly	Direct labour hour	120	1.40	168
Packing	Direct labour hour	40	2.50	<u>100</u>
			Total	1,078

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(iv) Department-wise statement of total under or over recovery of overheads  
(a) Under current policy

	Departments			Total ₹
	Machining ₹	Assembly ₹	Packing ₹	
Direct Wages (Actual)	96,000	2,70,000	90,000	
Overheads recovered @ 125% of Direct wages: (A)	1,20,000	3,37,500	1,12,500	5,70,000
Actual overheads: (B)	3,90,000	84,000	1,35,000	6,09,000
(Under)/Over recovery of overheads: (A – B)	(2,70,000)	2,53,500	(22,500)	(39,000)

(b) As per methods suggested Basis of overhead recovery

	Machine hours	Direct Labour hours	Direct labour hours	Total ₹
Hours worked	96,000	90,000	60,000	
Rate/hour (₹)	4.50	1.40	2.50	
Overhead recovered (₹): (A)	4,32,000	1,26,000	1,50,000	7,08,000
Actual overheads (₹): (B)	3,90,000	84,000	1,35,000	6,09,000
(Under)/Over recovery: (A – B)	42,000	42,000	15,000	99,000

### Question.11

(a) ABC Ltd. provides you the following information:

(i)

Particulars	Amt. in ₹					
	April	May	June	July	Aug	Sept.
Cash sales	8,000	12,000	16,000	20,000	24,000	28,000
Collection from debtors	16,000	32,000	48,000	64,000	80,000	96,000
Cash purchases	8,000	12,000	16,000	20,000	24,000	28,000
Payment to creditors	12,000	24,000	36,000	48,000	60,000	72,000
Payment of expenses	12,000	5,000	7,800	2,950	27,000	20,000

(ii) The opening cash balance of ₹ 10,000 is the minimum cash balance to be maintained.

(iii) Any short fall in the minimum cash balance is to be met by Bank borrowings in the multiple of RS. 5,000 @ 12% p.a. or by sale of marketable securities in the multiple of ₹ 10,000. Bank interest on monthly basis is payable on the first date of the subsequent month. Bank interest is payable for a minimum period of a month.

(iv) Any surplus cash is to be used to repay the borrowings in the multiple of ₹ 5,000 or to purchase the marketable securities in the multiple of ₹ 10,000 (ignore interest on securities received and paid).

You are required to prepare the Cash Budget for April to September.

### Answer

a) Cash Budget for April to September

Particulars	Amt. in ₹					
	April	May	June	July	Aug	Sept.
A. Total Cash available :						
Opening cash balance	10,000	12,000	14,900	14,000	12,000	15,000
Cash sales	8,000	12,000	16,000	20,000	24,000	28,000
Collection from debtors	16,000	32,000	48,000	64,000	80,000	96,000
	34,000	56,000	78,900	98,000	1,16,000	1,39,000



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B. Total Cash Payments :						
Cash purchases	8,000	12,000	16,000	20,000	24,000	28,000
Payment to creditors	12,000	24,000	36,000	48,000	60,000	72,000
Payment of expenses	12,000	5,000	7,800	2,950	27,000	20,000
	32,000	41,000	59,800	70,950	1,11,000	1,20,000
C. surplus (Deficit) [A – B]	2,000	15,000	19,100	27,050	5,000	19,000
Financing and investment :						
D. Borrowings	10,000	-	-	-	-	-
E. Sales of securities	-	-	-	-	10,000	-
F. Less : Repayment of borrowings	-	-	5,000	5,000	-	-
G. Less : Interest on borrowings	-	100	100	50	-	-
H. Less : Purchase of securities	-	-	-	10,000	-	-
I. Closing cash balance [C +D +E – F – G –H]	12,000	14,900	14,000	12,000	15,000	19,000

- (b) Enumerate the essential pre-requisites of integrated accounting system. Also state its advantages, if any.

**Answer:**

**Essential pre-requisites for integrated accounts:**

The essential pre-requisites for integrated accounts include the following steps

- (i) The managements decision about the extent of integration of the two sets of books, some concerns find it useful to integrate upto the stage of primary cost or factory cost, while others prefer full integration of the entire accounting records.
- (ii) A suitable coding system must be made available so as to serve the accounting purposes of financial and cost accounts.
- (iii) An agreed routine, with regard to the treatment of provision for accruals, prepaid expenses, other adjustment necessary for preparation of interim accounts.
- (iv) Perfect coordination should exist between the staff responsible for the financial and cost aspects of the accounts and an efficient processing of accounting documents should be ensured.

**Advantages of integrated accounting system:**

The main advantages of integrated accounts are as follows

- (i) No need for Reconciliation: The question of reconciling costing profit and financial profit does not arise, as there is one figure of profit only
- (ii) Significant saving in the clerical efforts, as only one set of books is maintained.
- (iii) Retrieving of information is easy & quick
- (iv) It is economical also as it is based in the concept of centralization of accounting function

**Question.12**

- (a) Write a short note on the following, with reference to contract accounting.

- (i) Surveyor's Certificate and Retention Money
- (ii) Escalation Clause
- (iii) Work-in-progress

**Answer:**

- (i) Surveyor's Certificate and Retention Money:

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In the case of contracts running for long periods of time, it is customary for the contractor's firm to get 'on account' payments against the portion of contract completed. The amount received depend upon the extent of work certified by the technical assessor i.e. on the surveyor's certificates, as these are called. Normally such payments are not received to the full extent of the work completed but a small percentage is held back as retention money, payable on completion of the contract. The retention money is a sort of safeguard available to the contractee in case the contractor is no able to fulfill one or more of the conditions laid down in the contract.

### (ii) Escalation Clause:

Escalation clauses are often provided in contracts as safeguards against any likely changes in price or utilisation of material and labour. Such a clause in a contract would provide that in the event of a specified contingency happening, the contract price would be suitably enhanced. This clause is particularly necessary where the price of certain raw materials are likely to rise, where labour rates are anticipated to increase, or where the quantity of material or labour time cannot be properly assessed or estimated unless the work has sufficiently advanced. There may also be '**De-escalation or Reserve Clause**' to provide for any future decrease in price etc. so that the benefit may be passed on to the contractee.

### (iii) Work-in-progress:

In Contract Accounts, the value of the work-in-progress consists of:-

- (a) the cost of work completed, both certified and uncertified,
- (b) the cost of work not yet complete, and
- (c) the amount of profit taken as credit.

In the Balance Sheet, the work-in-progress is usually shown under two heads, viz. certified and uncertified. The cost of work completed and certified and the profit credited will appear under the head 'certified' work-in-progress, while the completed work not yet certified and the cost of labour, material and expenses of work which has not reached the stage of completion are shown under the head 'uncertified' work-in-progress.

- (b) Calculate all the Sales Variance on Sales Margin basis from the following information provided by Vishnu Ltd. Also reconcile the standard profit with actual profit.

Product	Budgeted sales quantity Units	Budgeted selling price per unit ₹	Standard cost per unit ₹	Actual sales quantity Units	Actual selling price per unit ₹	Actual cost per unit ₹
A	60	20	15	44	25	16
B	40	10	4	66	5	5

### Answer

Basic calculation:

1. Budgeted margin per unit (BM) = Budgeted selling price per unit – Standard cost per unit
- |           |               |   |     |
|-----------|---------------|---|-----|
| Product A | = ₹ 20 – ₹ 15 | = | ₹ 5 |
| Product B | = ₹ 10 – ₹ 4  | = | ₹ 6 |

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2. Actual margin per unit (AM)	= Actual selling price per unit – Standard cost per unit		
Product A	= ₹ 25 – ₹ 15	=	₹ 10
Product B	= ₹ 5 – ₹ 4	=	₹ 1

### Basic calculation for the computation of sales variances (on sales margin basis)

Product	BQ	BM	BQ x BM (1)	AQ	AM	AQ x AM (2)	AQ x BM (3)	RQ	RQ x BM (4)
A	60	5	300	44	10	440	220	66	330
B	40	6	240	66	1	66	396	44	264
Total	100		540	110		506	616		594

Sales margin (profit) variance (2 – 1)	=	(AQ x AM) – (BQ x BM)	
	=	₹ 506 – ₹ 540	= ₹ 34 (A)
Sales margin price variance (2 – 3)	=	(AQ x AM) – (AQ x BM)	
Product A	=	₹ 440 – ₹ 220	= ₹ 220 (F)
Product B	=	₹ 66 – ₹ 396	= ₹ 330 (A)
			<u>₹ 110 (A)</u>
Sales margin volume variance (3 – 1)	=	(AQ x BM) – (BQ x BM)	
Product A	=	₹ 220 – ₹ 300	= ₹ 80 (A)
Product B	=	₹ 396 – ₹ 240	= ₹ 156 (F)
			<u>₹ 76 (F)</u>
Sales margin mix variance (3 – 4)	=	(AQ x BM) – (RQ x BM)	
Product A	=	₹ 220 – ₹ 330	= ₹ 110 (A)
Product B	=	₹ 396 – ₹ 264	= ₹ 132 (F)
			<u>₹ 22 (F)</u>
Sales margin sub-volume variance	=	(AQ – BQ) x Average budgeted margin	
	=	(110 – 100) x $\frac{₹ 540}{100}$	= ₹ 54 (F)

Verification:

1. Sales margin variance	=	Sales margin price variance + Sales margin volume variance	
	=	₹ 110 (A) + ₹ 76 (F)	= ₹ 34 (A)
2. Sales margin volume variance	=	Sales margin volume variance + Sales margin sub-volume variance	
	=	₹ 22 (F) + ₹ 54 (F)	= ₹ 76 (F)

### Statement reconciling the standard profit with actual profit

	₹	₹
A. Budgeted profit		
Product A [60 x ₹ 5]	300	
Product B [40 x ₹ 6]	<u>240</u>	540
B. Add : Fav. Sales margin volume variance		<u>76</u>
C. Standard profit [A + B]		616
D. Less : Adverse Sales price variance	110	
Adverse cost variance : Product 'A' 44 x (₹ 15 – ₹ 16)	44	
Product 'B' 66 x (₹ 4 – ₹ 5)	<u>66</u>	<u>220</u>

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E. Actual profit [C – D]

396

Verification: Actual profit =  $[44 \times (\text{₹ } 25 - \text{₹ } 6)] + [66 \times (\text{₹ } 5 - \text{₹ } 5)] = \text{₹ } 396$

### Question.13

(a) Two fitters, a labourer and a boy undertake a job on piece rate for ₹ 1,290. The time spent by each of them is ₹ 220 ordinary working hours. The rates of pay on time-rate basis, are ₹ 1.50 per hour for each of the two fitters, Re 1 per hour for the labourer and Re 0.50 per hour for the boy. Calculate:

- (i) The amount of piece-work premium and the share of each worker, when the piece-work premium is divided proportionately to the time wages paid
- (ii) The selling price of the above job on the basis of the following additional data:  
Cost of direct material ₹ 2,010; Works Overhead at 20% of Prime Cost, Selling Overhead at 10% of Work Cost and Profit at 25% on Cost of Sales.

**Answer:**

#### (i) Calculation of wages:

2 Fitters @ ₹ 1.50 per hour for 220 hours each	₹ 660
1 Labourers @ Re. 1 per hour for 220 hours	₹ 220
1 Boy @ Re. 0.50 per hour for 220 hours	₹ 110
<b>Total</b>	<b>₹ 990</b>

#### Piece Work Premium

Total Wages agreed on piece-rate basis	1,290
Less: Wages calculated on time basis	990
<b>Piece Work Premium [as in (i) above]</b>	<b>300</b>

Amount of premium will be paid to workers in the ratio of 660:220:110 (or 6:2:1) as follows:

	₹
2 Fitters	200.00
1 Labourer	66.67
1 Boy	33.33
	<b>300.00</b>

#### (ii) Computation of Selling Price:

Direct Material	₹ 2,010
Direct Wages	1,290
<b>Prime Cost</b>	<b>3,300</b>
Work Overheads at 20% in Prime Cost	660
<b>Work Cost</b>	<b>3,960</b>
Selling Expenses at 10% in Work Cost	396
<b>Cost of Sales</b>	<b>4,356</b>
Add: Profit at 25% on Cost of Sales	1,089
<b>Selling Price</b>	<b>5,445</b>

(b) A publishing house purchases 2,000 units of a particular item per year at a unit cost of ₹ 20, the ordering cost per order is ₹ 50 and the inventory carrying cost is 25%. Find the optimal order quantity and the minimum total cost including purchase cost.

If a 3% discount is offered by the supplier for purchases is lots of 1,000 or more, should the publishing house accept the order?

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**Answer:**

EOQ without discount

$$= \sqrt{\frac{2ab}{CS}} = \sqrt{\frac{2 \times 2,000 \text{ units} \times ₹50}{₹20 \times 25\%}} = 200 \text{ units}$$

No. of orders to be placed =  $2,000 \div 200 = 10$  orders

Average inventory  $(200 \div 2) = 100$  unit

Ordering cost (10 x ₹50)	₹500
Carrying Cost of average inventory (100 x 5)	500
Purchase Cost (2,000 x ₹20)	40,000
	41,000

EOQ with discount

Unit Cost after discount = ₹ 20 - (3% of 20) = ₹ 19.40

Carrying Cost = 25% of ₹ 19.40 = ₹ 4.85

Lot size = 1,000 units, i.e., 2 orders

Average inventory  $(1,000 \div 2) = 500$  units

	₹
Ordering cost (2 x ₹50)	100
Carrying Cost of average inventory (500 x ₹4.85)	2,425
Purchase Cost (2,000 x ₹19.40)	38,800
	41,325

The above computation shows that supplier's offer for 3% discount should not be accepted. However, higher discount should be negotiated with the supplier.

**Question.14**

**(a) State the accounting treatment and ways of apportionment of joint costs.**

**Answer:**

**Accounting Treatment:**

In case of joint products, the main objective of accounting of the cost is to apportion the joint costs incurred up to the split off point. As discussed earlier, the manufacturing process is same up to a certain stage and after crossing that stage; each product has distinct manufacturing process. Therefore the main problem is apportionment of the joint cost or the cost incurred up to the split off point. The total cost of production of the joint product will be cost incurred up to the split off point duly apportioned plus the cost incurred after the split off point. There is no problem of charging the cost incurred after the split off point as the cost can be identified easily. The main problem therefore is that of apportionment of the joint cost and the following methods are used for apportioning the same.

**(i) Physical Quantity Method:** Under this method, cost apportionment is made in proportion to the volume of production. These physical measures may be units, pounds, liters, kilos, tones, gallons etc.

**(ii) Average Unit Cost Method:** Under this method, the joint cost is apportioned to the joint products by computing the average unit cost of the product units. The average unit cost is computed by dividing the total manufacturing cost by the total number of units produced of all products. This method is useful where all the products produced are uniform with each other in all the respects. This method will not be useful if the production units are not similar with each other.

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- (i) **Weighted Average Method:** Under this method, weights are assigned to each unit based upon size of the units, difference in type of labor employed, material consumption, market share, efforts of labour required and so on. The joint cost is apportioned on the basis of the weights assigned to each product. This method is highly useful if the weights assigned are on objective basis. If subjective element creeps in, the method may not give accurate results.
- (ii) **Selling Price Method:** Under this method, the joint cost is apportioned on the basis of sales value at the split off point. The logic is that a product should bear the share of the joint cost according to its sale price. If sales price is higher than that of the other products, more share of joint cost should be charged to that product and if it is comparatively less than that of other products, less share of joint cost should be charged to the same. Though logically this method seems to be sound, in practice, charging higher share of joint cost to the product with higher sales value may not be justified due to the fact that lesser efforts are required for manufacturing of the same.

- (b) **ABC Ltd. Makes and sells a single product. The company's trading results for the year 2013 are as follows :**

		₹'000
Sales		3,000
Direct materials		900
Direct labour	600	
Overheads	<u>900</u>	<u>2,400</u>
Profits		<u>600</u>

For the year 2014, the following are expected:

- (i) Reduction in the selling price by 10%
- (ii) Increasing in the quantity sold by 50%
- (iii) Inflation of direct material cost by 8%
- (iv) Price inflation in variable overhead by 6%
- (v) Reduction of fixed overhead expenses by 25%.

It is also known that

- a) In 2012, overhead expenditure totaled to ₹ 8,00,000.
- b) Total overhead cost inflation for 2013 has been 5% more than in 2012.
- c) Production and sales volumes have been 25% higher in 2013 than in 2012.

You are required to:

- (i) Prepare a statement showing the estimated trading results for 2014.
- (ii) Calculate the break-even point for 2013 and 2014.
- (iii) Comment on the BEP and profits of the 2013 and 2014.

**Answer**

a)

i) Statement showing trading results

Particulars	2013	2014
A. Sales :	3,000	4,050 (3,000 x 150% x 90%)
B. Less : Variable Costs : Direct material	900	1,458 (900 x 150% x 108%)
Direct labour	600	900 (600 x 150%)
Variable overhead	<u>300</u>	<u>477</u> (300 x 150% x 106%)
Total variable cost	1,800	2,835
C. Contribution [A – B]	1,200	1,215
D. Less : Fixed overheads	<u>600</u>	<u>450</u> (600 x 0.75)

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E. Profit [C – D]	600	765
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ii) 
$$\text{P/V Ratio} = \frac{\text{Contribution}}{\text{Sales}} \times 100$$

$$\frac{1,200}{3,000} \times 100 = 40\% \qquad \frac{1,215}{4,050} \times 100 = 30\%$$

$$\text{BEP} = \frac{\text{Fixed Cost}}{\text{P/V Ratio}}$$

$$\frac{600}{40\%} = 1,500 \qquad \frac{450}{30\%} = 1,500$$

iii)

Particulars	2013	2014	% change
BEP	1,500	1,500	No change
Fixed overheads	600	450	$\frac{450 - 600}{600} \times 100 = (25\%)$
P/V Ratio	40%	30%	$\frac{30 - 40}{40} \times 100 = (25\%)$
Profit	600	765	$\frac{765 - 600}{600} \times 100 = 27.5\%$

Both fixed cost and P/V ratio have declined by 25% equally. So, BEP sales remains the same.

The contribution is only ₹ 1,215 in 2014 though quantity is increased by 50%. This is due to increase in production cost and decrease in selling price. This is more than made up by decrease in fixed cost so that overall profit has increased by 27.5%.

### Working notes : Calculation of variable overheads and fixed overheads

Total overheads for same production in 2013 =  $800 \times 105\% = 840$

Variable overheads for 2013 =  $\frac{900 - 840}{125 - 100} \times 125 = 300$

Fixed overheads for 2013 =  $900 - 300 = 600$

### Question.15

(a) What do you mean by time and motions study? Why is it so important to management?

Answer:

**Time and motions study:** It is the study of time taken and motions (movements) performed by workers while performing their jobs at the place of their work. Time and motion study has played a significant role in controlling and reducing labour cost. Time Study is concerned with the determination of standard time required by a person of average ability to perform a job. Motion study, on the other hand, is concerned with determining the proper method of performing a job so that there are no wasteful movements, hiring the worker unnecessarily. However, both the studies are conducted simultaneously. Since materials, tools, equipment and general arrangement of work, all have vital bearing on the method and time required for its completion. Therefore, their study would be incomplete and would not yield its full benefit without a proper consideration of these factors.

Time and motion study is important to management because of the following features:

(i) Improved methods, layout, and design of work ensures effective use of men, material and resources.

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- (ii) Unnecessary and wasteful methods are pin-pointed with a view to either improving them or eliminating them altogether. This leads to reduction in the work content of an operation, economy in human efforts and reduction of fatigue.
- (iii) Highest possible level of efficiency is achieved in all respect.
- (iv) Provides information for setting labour standards - a step towards labour cost control and cost reduction.
- (v) Useful for fixing wage rates and introducing effective incentive scheme.

- (b) Fair Play Co. Ltd has introduced a Scanlon Plan of incentive bonus for its employees in 2013 based on the following information relating to previous three years:

Year	Sales Revenue ₹	Total Salaries & Wages ₹
2010	1,25,000	45,000
2011	1,30,000	28,000
2012	1,35,000	32,000

For 2013 the sales revenue has been ₹ 1,50,000 and total salaries and wages payment has been ₹ 36,000. What is the amount due as bonus to the employees according to Scanlon Plan?

If 30% is set aside in a bonus equalisation fund how much money is available to be paid out as Scanlon bonus for 2013?

**Answer:**

Average of Sales Revenue = (1,25,000 + 1,30,000 + 1,35,000) ÷ 3 = ₹1,30,000	
Average salary = (45,000 + 28,000 + 32,000) ÷ 3 = ₹ 35,000	
% of average salary & wages on average sales = 35,000 / 1,30,000 = 26.92%	
The share of employees in 2013 = 1,50,000 x 26.92 / 100	= ₹ 40,380
(-) Paid as wages	= ₹ 36,000
	= ₹ 4,380
(-) Transfer to bonus equalization fund (30%)	= ₹ 1,314
Amount still to be paid as bonus	= ₹ 3,066

**Question.16**

- (a) Differentiate between Job Costing and Process Costing.

**Answer:**

**Difference between Job Costing and Process Costing:**

	Job Costing	Process Costing
(i)	The form of specific order costing which applies where the work is undertaken to customer's special requirements.	That form of costing which applies where standardised goods are produced and production is in continuous flow, the products being homogeneous.
(ii)	The job is the cost unit and costs are collected for each job.	Costs are collected by process or department on time basis and divided by output for a period to get an average cost per unit.
(iii)	Losses are generally not segregated.	Normal losses are carefully predetermined and abnormal losses are segregated.
(iv)	Overheads are allocated and apportioned to cost centers then absorbed by jobs, in proportion to the time taken.	Units pass through the same processes. Overheads are apportioned to processes on some suitable basis, sometimes, pre-determined rates may be used



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(v)	Joint products / By-products do not usually arise in jobbing work.	Joint products/By-products do arise and joint cost apportionment is necessary.
(vi)	Standard costing is generally not suitable for jobbing work.	The standardized nature of products and processing methods lends itself to the adoption of standard costing.
(vii)	Work-in-progress valuation is specific and is obtained from analysis of outstanding jobs.	For WIP valuation operating costs have to be spread over fully complete output and partially complete products using the concept of equivalent units.
(viii)	Each job is separate and independent of others. Costs are computed when a job is complete.	Products lose their individual identity as they are manufactured in a continuous flow. Costs are calculated at the end of cost period.
(ix)	There are usually no transfers from one job to another unless there is a surplus work or excess production.	Transfer of costs from one process to another is made, as the product moves from one process to another.
(x)	There may or may not be work-in-progress at the beginning or end of the accounting period.	There is always some work-in-process at the beginning as well as at the end of the accounting period.
(xi)	Proper control is comparatively difficult as each product unit is different and the production is not continuous.	Proper control is comparatively easier, as the production is standardized and is more stable.
(xii)	It requires more forms and details.	It requires few forms and less details.

(b) Adarsh Ltd. manufactures a product and provides you the following information :

<b>Budgeted data -</b>	<b>Direct materials</b>	-	<b>₹ 4,00,000</b>
	<b>Direct labour</b>	-	<b>₹ 4,00,000</b>
	<b>Variable overheads</b>	-	<b>₹ 80,000</b>
	<b>Fixed overheads</b>	-	<b>₹ 2,00,000</b>
	<b>Sales (10,000 units)</b>	-	<b>₹ 13,50,000</b>
<b>No opening and closing stock.</b>			

	Favourable (₹)	Adverse (₹)
<b>Material price variance</b>		<b>66,000</b>
<b>Material usage variance</b>		<b>10,000</b>
<b>Labour rate variance</b>		<b>6,800</b>
<b>Labour efficiency variance</b>		<b>12,000</b>
<b>Idle time variance</b>		<b>8,000</b>
<b>Variable overhead efficiency variance</b>		<b>2,400</b>
<b>Variable overhead expenditure variance</b>	<b>6,400</b>	
<b>Fixed overhead efficiency variance</b>		<b>6,000</b>
<b>Fixed overhead capacity variance</b>		<b>34,000</b>
<b>Fixed overhead expenditure variance</b>	<b>16,000</b>	
<b>Sales price variance</b>	<b>40,000</b>	
<b>Sales margin volume variance</b>		<b>54,000</b>

Required:

- (i) Prepare a Standard Cost sheet
- (ii) Prepare a statement showing total Standard Cost for Actual Output
- (iii) Prepare Actual Cost sheet
- (iv) Reconcile the Actual Profit with the Standard Profit.

**Answer**

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**Statement showing Standard Cost Sheet, Total Standard Cost for Actual Output and Actual Cost Sheet**

Particulars A	Original budget for 10,000 units B	Standard Cost per unit C=B/10,000	Standard Cost for 8,000 units D = C x 8,000	Variance E	Actual for 8,000 units F = D + E
Direct material	4,00,000	40	3,20,000	(-) 76,000	3,96,000
Direct labour	4,00,000	40	3,20,000	(-) 26,800	3,46,800
Variable overhead	80,000	8	64,000	4,000	60,000
Fixed overhead	2,00,000	20	1,60,000	(-) 24,000	1,84,000
Total cost	10,80,000	108	8,64,000	(-) 1,22,800	9,86,800
Net profit	2,70,000	27	2,16,000	(-) 82,800	1,33,200
Sales	13,50,000	135	10,80,000	40,000	11,20,000

**Statement Reconciling the Actual Profit with the standard Profit**

			₹
Budgeted profit (10,000 @ ₹ 27)			2,70,000
Less : Adverse sales margin volume variance [₹ 27.5 (8,000 – 10,000)]			(-) 54,000
Standard profit			2,16,000
Add : Sales price variance [8,000 (₹ 135 – ₹ 140)]			40,000
Profit before adjustment of cost variances			2,56,000
Adjustment of cost variances :			
	Favourable (₹)	Adverse (₹)	
Material price variance		66,000	
Material usage variance		10,000	
Labour rate variance		6,800	
Labour efficiency variance		12,000	
Idle time variance		8,000	
Variable overhead efficiency variance		2,400	
Variable overhead expenditure variance	6,400		
Fixed overhead efficiency variance		6,000	
Fixed overhead capacity variance		34,000	
Fixed overhead expenditure variance	16,000		
	22,400	1,45,200	(-) 1,22,800
Actual profit			1,33,200

**Working note : Calculation of Actual Output**

Sales margin volume variance = Budgeted margin per unit x (Budgeted Qty. – Actual Qty.)

$$₹ 54,000 = 27 \times (10,000 - \text{Actual Qty.})$$

$$\text{Actual Qty.} = 10,000 - \frac{₹ 54,000}{27}$$

$$\text{Actual Qty.} = 10,000 - 2,000 = 8,000 \text{ units.}$$

**Question.17**

- (a) **New India Industries is manufacturing several consumer durables which have good demand in the market. The firm has been established only very recently and currently it is in the stage of introduction. It has ambitious plans to expand production after earning a name in the market. However, the company is having problems to get adequate power supply. Moreover most of its labourers are casual workers and labour – absenteeism is also**

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affecting production. In view of these unstable conditions the firm has adopted the practice of preparing quarterly flexible budgets.

For the quarter ending 31<sup>st</sup> December, 2013 flexible budgets for three possible levels of production were prepared as follows. The company wanted to achieve 90% capacity utilization as its products had good demand.

(₹ In lakhs)

	Flexible budgets		
	60%	80%	90%
<b>Budgeted sales</b>	<b>50.00</b>	<b>66.00</b>	<b>75.00</b>
<b>Budgeted costs :</b>			
<b>Direct materials</b>	<b>12.00</b>	<b>16.00</b>	<b>18.00</b>
<b>Direct labour</b>	<b>15.00</b>	<b>20.00</b>	<b>22.50</b>
<b>Production overheads</b>	<b>11.80</b>	<b>14.00</b>	<b>15.10</b>
<b>Administration overheads</b>	<b>2.00</b>	<b>2.00</b>	<b>2.00</b>
<b>Selling overheads</b>	<b>7.80</b>	<b>9.80</b>	<b>10.20</b>

Soon after the decision to attain 90% capacity utilization, available power was reduced by the State Electricity Board and the reduced supply was sufficient to meet 50% capacity production. The position has been immediately reviewed and the firm is considering the following possible options to meet the situation:

- (i) Stop production for the quarter. As regular employees are only few, lay off compensation payable will be only ₹ 1.20 lakhs. Further, overheads can be reduced by as much as 60%.
- (ii) Continue production at 50% level. Estimated sales income at this level will be ₹ 40 lakhs
- (iii) A private agency in the area has offered surplus captive power available with it. With this additional supply production can be maintained at 90% level. However, the overall variable production overhead will increase by 40%.
- (iv) Sub-contract the balance 40% which cannot be made by the firm to two small industrial units in the area, which have the necessary facilities, equally at a cost of ₹ 15 lakhs each.

Evaluate each of the above options and recommend the best plan. Indicate the other important points, if any, to be considered.

### Answer

#### Working notes:

	(₹ In lakhs)	
Particulars	At 50% capacity	At 90% capacity
1. Variable cost		
Direct materials	10.00	18.00
Direct labour	12.50	22.50
2. Fixed cost		
Admin. Overheads	2.00	2.00
3. Semi-variable costs		

Segregation of semi-variable costs into variable and fixed components.

$$\begin{aligned}
 \text{(i) Variable Component} &= \text{Change in cost / Change in capacity} \\
 \text{Production overheads} &= (\text{₹ 15.10 lakhs} - \text{₹ 11.80 lakhs}) / 90\% - 60\% \\
 &= \text{₹ 3.30 lakhs} / 30\% \\
 &= 0.11 \text{ lakhs for each 1\% capacity}
 \end{aligned}$$

Variable production overhead

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At 50% capacity = ₹ 0.11 lakhs x 50 = ₹ 5.5 lakhs  
 At 90% capacity = ₹ 0.11 lakhs x 90 = ₹ 9.90 lakhs

Fixed production overhead = ₹ 11.80 lakhs – (₹ 0.11 lakhs x 60) = ₹ 5.20 lakhs  
 Variable component of selling overheads = (₹ 10.20 lakhs – ₹ 7.80 lakhs) / 90% - 60%  
 = ₹ 2.40 lakhs / 30%  
 = ₹ 0.08 lakh for each 1% capacity

Variable selling overhead

At 50% capacity = ₹ 0.08 lakh x 50 = ₹ 4 lakhs  
 At 90% capacity = ₹ 0.08 lakhs x 90 = ₹ 7.2 lakhs  
 Fixed selling overhead = ₹ 7.80 lakhs – (₹ 0.08 lakh x 60) = ₹ 3.00 lakhs

### Flexible Budget

Particulars	Capacity (₹ Lakhs)	
	50%	90%
Sales (A)	40.00	75.00
Direct material	10.00	18.00
Direct labour	12.50	22.50
Variable overheads		
- Production	5.50	9.90
- Selling	4.00	7.20
Fixed overheads		
- Production	5.20	5.20
- Administration	2.00	2.00
- Selling	3.00	3.00
Total cost (B)	42.20	67.80
Net profit / (loss) (A) – (B)	(2.20)	7.20

(a) **Loss to be incurred if stoppage of operations** (₹ Lakhs)  
 Lay off compensation 1.20  
 Fixed overheads (₹ 10.20 lakhs x 40/100) 4.08  
 Loss if operations are closed 5.28

(b) **Loss if continue production at 50% level**  
 Loss would be ₹ 2.20 lakhs (Calculation given above)

(c) **Profitability if production is at 90% capacity** (₹ Lakhs)  
 Profit (as calculated above) 7.20  
 Less: Additional cost due to purchase of Power from  
 Private agency (₹ 9.90 x 40/100) 3.96  
 Net profit 3.24

(d) **Profitability of operation at 50% capacity and sub-contracting the balance 40%** (₹ Lakhs)  
 Total cost - at 50% capacity 42.20  
 Sub-contract charges (₹ 15.00 lakhs x 2) - for balance 40% capacity 30.00  
 Variable selling overhead (₹ 7.20 lakhs – ₹ 4 lakhs) – for balance 40% capacity 3.20  
 Total cost 75.40  
 Loss (balancing figure) 0.40

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Sales

75.00

Analysis: From analysis of above alternative C is most profitable with which the company can earn a profit of ₹ 3.24 lakhs. Hence, operation at 90% capacity with the purchase of power from private agency is the suggested mode of action.

**(b) Differentiate between Zero Based Budgeting and Traditional Budgeting.**

**Answer:**

Points of difference	Traditional budgeting	Zero Based Budgeting
Frequency	Annual	Every 3-5 years
Starting point	Last year's budget	Zero
Basis	Last year + %	Careful analysis of decision packages
Budgeted amount	Usually single amount	Depends upon analysis of benefits from incremental spending
Priority of activities	'Musts' and 'wants' not differentiated	Distinguished 'musts' and 'wants' and rank priorities
Alternatives	Often ignored	Considered
People involved	Boss and subordinate	Cross-functional team
Awareness necessary	Knowledge of own function	Comprehensive understanding of how the whole business works
Preparation	Can be minimal	Substantial
Appropriateness	General activities	Most effective in Support type activities

**Question.18**

**(a) The following data pertains to Process I for March 2014 of Alpha Limited :**

Opening Work in Progress 1,500 units at ₹ 15,000

Degree of completion

Materials 100% ; Labour and Overheads  $33\frac{1}{3}\%$

Input of Materials 18,500 Units at ₹ 52,000

Direct Labour ₹ 14,000

Overheads ₹ 28,000

Closing Work in Progress 5,000 units

Degree of Completion

Materials 90% ; Labour and Overheads 30%

Normal Process Loss is 10% of total Input (opening work in progress units + units put in)

Scrap value ₹ 2.00 per unit

Units transferred to the next process 15,000 units.

Your are required to :-

- (i) Compute equivalent units of production.
- (ii) Compute cost per equivalent unit for each cost element i.e., materials, labour and overheads.
- (iii) Compute the cost of finished output and closing work in progress.
- (iv) Prepare the process and other Accounts.

Assume:

- (i) FIFO Method is used by the Company.
- (ii) The cost of opening work in progress is fully transferred to the next process.

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### Answer

(i) Statement of Equivalent Units of Production							
INPUT		OUTPUT		EQUIVALENT Material		PRODUCTION Labour Overhead &	
Particulars	Units	Particulars	Units	%	Units	%	Units
Op. WIP	1,500	Work on Op. WIP	1,500	—	—	66 $\frac{2}{3}$	1,000
Introduced	18,500	Introduced and completed in the period	<u>13,500</u>	100	13,500	100	13,500
		Transferred to next process	15,000				
		Normal Loss	2,000	—	—	—	—
		Closing WIP	<u>5,000</u>	<u>90</u>	<u>4,500</u>	<u>30</u>	<u>1,500</u>
			22,000		18,000		16,000
		Less: Abnormal Gain	2,000	100	2,000	100	2,000
	<u>20,000</u>		<u>20,000</u>		<u>16,000</u>		<u>14,000</u>

### (ii) Statement of Cost per Equivalent Unit for Each Cost Element

	Cost		Equivalent Units	Cost per Equivalent Unit
	₹	₹		₹
Material	52,000			
Less: Scrap Value	<u>4,000</u>	48,000	16,000	3
Labour		14,000	14,000	1
Overheads		28,000	14,000	2

### (iii) Statement of Cost of Finished Output and Closing Work in Progress

Particulars	Elements	Equivalent Units	Cost per Units		Cost of Equivalent Units	Total
			₹	₹		
Opening WIP (1,500 units)		—	—	—		15,000
Opening WIP	Material	NIL	—	—		
Opening WIP	Labour	1,000	1	1,000		
Opening WIP	Overhead	1,000	2	<u>2,000</u>		<u>3,000</u>
Units introduced and completed during the period	Material	13,500	3	40,500		
	Labour	13,500	1	13,500		
	Overhead	13,500	2	<u>27,000</u>		<u>81,000</u>

**Total Cost of 15,000 Units of finished output**

**99,000**

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Closing WIP (5,000 units)	Material	4,500	3	13,500
	Labour	1,500	1	1,500
	Overhead	1,500	2	<u>3,000</u>
Total cost of closing WIP (5,000 units)				18,000

<b>(iv) Process Account – I</b>					
	Units	₹		Units	₹
To Opening WIP	1,500	15,000	By Normal Loss	2,000	4,000
To Units introduced (Direct Material)	18,500	52,000	By Transfer to next process	15,000	99,000
To Direct Labour	—	14,000	By Closing WIP	5,000	18,000
To Overhead	—	28,000			
To Abnormal Gain (Statement i)	2,000	12,000			
	————	————		————	————
	<u>22,000</u>	<u>1,21,000</u>		<u>22,000</u>	<u>1,21,000</u>

<b>Abnormal Gain Account</b>					
	Units	₹		Units	₹
To Process A/c I	2,000	4,000	By Process I	2,000	12,000
To Profit & Loss A/c	—	<u>8,000</u>			
		<u>12,000</u>			<u>12,000</u>

### Working Note

Total cost of Abnormal Gain:  
(2,000 Units) @ ₹ 6/- p.u. = ₹ 12,000

**(b) What are the reasons for difference in profit as per financial accounts and cost accounts?**

**Answer:**

**Reasons for difference in profits of cost and financial accounts:**

**(i) Items shown in Financial Accounts:**

There are a number of items which are included in financial accounts but do not find place in cost accounts. They may be items of income or expenses, the former increases the profit and latter reduces the profit.

**A. Purely Financial Charges**

- (a)** Loss arising from the sale of fixed assets.
- (b)** Loss on sale of investments, discount on debentures, etc.
- (c)** Interest on bank loan, mortgage and debentures.
- (d)** Expenses of companies 'Share Transfer Office'.

**B. Appropriation of Profits**

- (a)** Donations and Charities
- (b)** Income Tax
- (c)** Dividend Paid
- (d)** Transfer to Reserves

### **C. Writing off Intangible and Fictitious Assets**

- (a) Goodwill
- (b) Patents & Copyrights
- (c) Advertisement
- (d) Preliminary Expenses

### **D. Pure Financial Incomes**

- (a) Rent received or Profit on Sale of Fixed Assets
- (b) Share transfer fee received
- (c) Interest received on Bank Deposits
- (d) Dividend received etc.

### **(ii) Items shown only in Cost Accounts:**

There are certain items which are included in cost accounts and not in financial accounts. Such items are very few.

E.g. Interest on capital employed, rent for own premises etc.

### **(iii) Over or Under Absorption of Overheads.**

Overheads are absorbed in Cost Accounts on a certain predetermined estimated basis and in Financial Accounts, actual amounts incurred are recorded. If there is any over or under absorption it leads to difference in the profits of both sets of books.

### **(iv) Differences due to different basis of stock valuation and depreciation methods.**

### **Question.19**

- (a) **What are the implications of Economic Order Quantity in proper inventory management?**

#### **Answer:**

The prime objective of inventory management is to find out and maintain optimum level of investment in inventory to minimize the total costs associated with it. Economic Order Quantity is the size of the order for which both ordering and carrying cost are minimum. Economic Order Quantity forms the very basis of inventory management. It refers to the size of each purchase order quantity for each item, which gives the maximum economy in purchase of that raw material or finished goods or stores materials. While placing any order for purchase of any item, it must be ensured that the order quantity is neither too large nor too small. A large order, no doubt, shall also mean the lower ordering cost but it shall mean a higher and sometimes prohibitive carrying costs. On the other hand, a small order may reduce the inventory carrying cost but the ordering costs would increase as the company may have to place a new order every now and then, besides, it may result in occasional production halts also. Therefore, a proper balance has to be struck between these two factors and the Economic Order Quantity shall be fixed at a point, where the aggregate cost of the two is minimum i.e., the total cost associated with the inventory management is minimum.

- (b) **What is the role of a Management Accountant in cost control and cost reduction?**

#### **Answer:**

Management Accountants role in cost control and cost reduction is perhaps central to his role as a member of the management team. Indeed, for effective cost control, it may be necessary to spend more on the items which will reduce waste and scrap, improve quality, increase productivity or conserve energy. In any large organization the points at which costs are incurred are usually numerous and relatively few line managers have the mechanism of collating and analyzing all the costs they incur, with a view to implementing cost control measures. The Management Accountant is uniquely placed in this respect and it usually falls on him to play a catalytic role in getting the management team to work together to achieve specific cost control objectives.



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It is also up to the Management Accountant to channelize the cost control and cost reduction efforts into areas which will give the greater results. Without this direction, cost control and cost reduction can too often degenerate into symbolic actions like reusing envelopes or downgrading the class of air travel, which generally have little impact on the overall cost structure but can substantially harm morale and motivation. It is important for the Management Accountant to guide the company's cost control and cost reduction programme into productive lines and not let it degenerate into a morale damaging axing of petty expenditure.

### Question.20

**(a) State the uses and application of Break-even analysis.**

**Answer:**

The important uses to which break-even analysis may be put to use are:

- (i) Forecasting costs and profits as a result of change in volume determination of costs, revenue and variable cost per unit at various levels of output.
- (ii) Fixation of sales volume level to earn or cover given revenue, return on capital employed, or rate of dividend.
- (iii) Determination of effect of change in volume due to plant expansion or acceptance of order, with or without increase in costs or in other words, determination of the quantum of profit to be obtained with increased or decreased volume of sales.
- (iv) Determination of comparative profitability of each product line, project or profit plan.
- (v) Suggestion for shift in sales mix.
- (vi) Determination of optimum sales volume.
- (vii) Evaluating the effect of reduction or increase in price, or price differentiation in different markets.
- (viii) Highlighting the impact of increase or decrease in fixed and variable costs on profit.
- (ix) Studying the effect of costs having a high proportion of fixed costs and low variable costs and vice-versa.
- (x) Inter-firm comparison of profitability.
- (xi) Determination of sale price which would give a desired profit for break-even.
- (xii) Determination of the cash requirements as a desired volume of output, with the help of cash breakeven charts.
- (xiii) Break-even analysis emphasizes the importance of capacity utilization for achieving economy.
- (xiv) During severe recession, the comparative effects of a shutdown or continued operation at a loss are indicated.
- (xv) The effect on total cost of a change in the fixed overhead is more clearly demonstrated through break-even charts.

**(b) A company has two divisions. Division 'M' and Division 'N'. Division 'M' has a budget of selling 2,00,000 nos. of a particular component 'x' to fetch a return of 20% on the average assets employed. The following particulars of Division 'M' are also known :**

<b>Fixed overhead</b>	<b>₹ 5 lakhs</b>
<b>Variable cost</b>	<b>₹ 1 per unit</b>
<b>Average assets</b>	
<b>Sundry debtors</b>	<b>₹ 2 lakhs</b>
<b>Inventories</b>	<b>₹ 5 lakhs</b>
<b>Plant &amp; equipments</b>	<b>₹ 5 lakhs</b>

**However, there is constraints in marketing and only 1,50,000 units of the component 'x' can be directly sold to the Market at the proposed price.**

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It has been gathered that the balance 50,000 units of component 'x' can be taken up by Division 'N'. Division 'M' wants a price of ₹ 4 per unit of 'x' but Division 'N' is prepared to pay ₹ 2 per unit of 'x'.

Division 'M' has another option in hand, which is to produce only 1,50,000 units of component 'x'. This will reduce the holding of assets by ₹ 2 lakhs and fixed overhead by ₹ 25,000.

You are required to advise the most profitable course of action for Division 'M'.

### Answer

#### Working Notes:

1. Profit = 20% return on average assets employed

#### Average Assets

	₹ in lakhs
Sundry debtors	2
Inventories	5
Plant & Equipment	<u>5</u>
Total	12

Profit = ₹ 12,00,000 x 20/100 = ₹ 2,40,000

#### 2. Budgeted sales revenue (2,00,000 units of component x)

	₹ In lakhs
Fixed costs	5.00
Variable cost (2,00,000 units @ Re.1)	2.00
Profit	<u>2.40</u>
Total sales	9.40
Selling price per unit of component x =	₹ 9,40,000 / 2,00,000 units = ₹4.70 per unit

#### Options in hand with Division M

Option I - Sell 1,50,000 units in market and transfer 50,000 units to Division N

Option II - Sell only 1,50,000 units in market

#### Statement of profitability of Division M under two options

	₹	
Particulars	Option - I	Option -II
Sales (1,50,000 units @ ₹ 4.70)	7,05,000	7,05,000
Transfer to Division N (50,000 units @ ₹2)	1,00,000	-
Total sales revenue	8,05,000	7,05,000
Less : variable overhead	2,00,000	1,50,000
Contribution	6,05,000	5,55,000
Less : Fixed cost	5,00,000	4,75,000
Profit	(a) 1,05,000	80,000
Capital employed	(b) 12,00,000	10,00,000
Return on capital employed	[a] / (b)] x 100	8.75%

Analysis: From the analysis of the above it is observed that under Option - I. division M's, Profit and ROCE is increased by ₹ 25,000 and 0.75% respectively. Hence Option -I is suggested for Division-M.

### Question.21

(a) A Chemical Company carries on production operation in two processes. The material first pass through Process I, where Product 'X' is produced.

Following data are given for the month just ended:

Material input quantity	2,00,000 kgs.
Opening work-in-progress quantity	

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(Material 100% and conversion 50% complete)	40,000 kgs.
Work completed quantity	
Closing work-in-progress quantity (Material 100% and conversion two-third complete)	30,000 kgs.
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 'X' can be sold for ₹ 1.60 per kg.

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

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

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

	1,20,000 kgs. of Product 'X' input	1,60,000 kgs. of Product 'X' 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 'X' 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 kgs. of Product 'X' further?
- (iii) Calculate the minimum acceptable selling price per kg., if a potential buyer could be found for additional output of Product 'XY' that could be produced with the remaining Product 'X' quantity.

Answer

(i)

**Process I**  
**Statement of equivalent production**

Inputs		Output		Equivalent output			
Particulars	Units	Particulars	Units	Material		Conversion	
	Kg.		Kg.	%	Unit kg.	%	Units kg.
Opening W.I.P.	40,000	Normal loss	40,000	-	-	-	-
New material introduced	2,00,000	Units introduced & completed	1,60,000	100%	1,60,000	100%	1,60,000
		Abnormal loss	10,000	100%	10,000	100%	10,000
	_____	Closing WIP	<u>30,000</u>	100%	<u>30,000</u>	2/3 <sup>rd</sup>	<u>20,000</u>
	<u>2,40,000</u>		<u>2,40,000</u>		<u>2,00,000</u>		<u>1,90,000</u>

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### Process I Statement of cost for each element

Elements of cost	Costs of opening WIP	Costs in process	Total cost	Equivalent units	Cost/Unit (Kg.)
	₹	₹	₹	Kg.	₹
Material	20,000	75,000	95,000	2,00,000	0.475
Conversion cost	<u>12,000</u>	<u>1,02,000</u>	<u>1,14,000</u>	1,90,000	<u>0.600</u>
	<u>32,000</u>	<u>1,77,000</u>	<u>2,09,000</u>		<u>1.075</u>

### Statement of apportionment of cost

Units completed	Elements	Equivalent units	Cost/unit	Cost	Total cost
			₹	₹	₹
Work completed	Material	1,60,000	0.475	76,000	
	Conversion	1,60,000	0.600	<u>96,000</u>	1,72,000
Closing WIP	Material	30,000	0.475	14,250	
	Conversion	20,000	0.600	<u>12,000</u>	26,250

(ii) Statement showing comparative data to decide whether 1,20,000 kg. of product 'X' should be processed further into 'XY'.

**Alternative I – To sell product 'X' after Process – I**

Sales 1,20,000 × 1.60	₹ 1,92,000
Less: Cost from Process I 1,20,000 × 1.075	<u>1,29,000</u>
Gain -	<u>63,000</u>

**Alternative II – Process further into 'XY'**

Sales 2,40,000 × 2.00	4,80,000
Less: Cost from Process I 1,20,000 × 1.075 = ₹ 1,29,000	
Material in Process II = ₹ 1,32,000	
Processing cost in Process II = ₹ <u>1,20,000</u>	<u>3,81,000</u>
Gain	<u>99,000</u>

Hence company should process further

It will increase profit by 99,000 – 63,000 = ₹ 36,000

**(iii) Calculation of minimum selling price/kg:**

Cost of processing remaining 40,000 kg. further	₹
Material 1,76,000 – 1,32,000	44,000
Processing cost 1,40,000 – 1,20,000	20,000
Cost from process I relating to 40,000 kg. 'X' (40,000 × 1.075)	43,000
Benefit foregone if 40,000 kg. 'X' are further processed	
40,000 (1.60 – 1.075)	<u>21,000</u>
Total cost	<u>1,28,000</u>
Additional quantity of product 'XY' (40,000 × 2) = 80,000 kg.	
∴ Minimum selling price $\frac{1,28,000}{80,000} = ₹ 1.60/\text{kg.}$	

**(b) State the advantages of Budgetary Control.**

**Answer:**

(i) Budgetary control aims at maximisation of profits through optimum utilisation of

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- resources.
- (ii) It is a technique for continuous monitoring of policies and objectives of the organisation.
  - (iii) It helps in reducing the costs, thereby helps in better utilisation of funds of the organisation.
  - (iv) All the departments of the organisation are closely coordinated through establishment of plans resulting in smooth functioning of the organisation.
  - (v) Since budgets fix the responsibilities of the executives, they act as a plan of action for them there by reducing some of their work.
  - (vi) It facilitates analysis of variances, thereby identifying the areas where deficiencies occur and proper remedial action can be taken.
  - (vii) It facilitates the management by exception.
  - (viii) Budgets act as a motivating force to achieve the desired objective of the organisation.
  - (ix) It assists delegation of authority and is a powerful tool of responsibility accounting.
  - (x) It helps stabilizing the conditions in industries which face seasonal fluctuations.
  - (xi) It helps as a basis for internal audit.
  - (xii) It provides a suitable basis for introducing the payment by results system.
  - (xiii) It ensures adequacy of working capital to the organisation.
  - (xiv) It aids in performance analysis and performance reporting system.
  - (xv) It aids in obtaining bank credit.
  - (xvi) Budgets are forerunners of standard costs in the sense that they create necessary conditions to suit setting up of standard costs.

### Question.22

- (a) The overhead expenses recorded in the books of a manufacturing Company for the year ended 30<sup>th</sup> June, 2013 are given below:

	Total ₹	Production Department		Service Department	
		Machine Shop ₹	Packing ₹	General Plant ₹	Maintenance and Stores ₹
Indirect labour	29,300	8,000	6,000	4,000	11,300
Maintenance Material	10,040	3,600	1,400	2,040	3,000
Miscellaneous supplies	3,500	800	2,000	300	400
Supervisor's Salary	8,000	----	----	8,000	-----
Cost and payroll salaries	20,000	----	----	20,000	-----
Power	16,000				
Rent	24,000				
Heat and Fuel	12,000				
Insurance	2,000				
Taxes	4,000				
Depreciation	2,00,000				
	3,28,840	12,400	9,400	34,340	14,700

The following data are also available:

	Floor space (sq.ft)	Radiator section	No. of employees	Value of assets (₹)	H.P. ×hours

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Machine Shop	1,000	90	40	64,000	3,500
Packing	400	180	20	20,000	500
General Plant	200	60	6	1,000	-----
Maintenance and Stores	800	120	10	15,000	1,000
	2,400	450	76	1,00,000	5,000

Expenses charged to the Maintenance and Stores are to be distributed to other departments by the following percentages:

Machine Shop – 50%, Packing – 20%, General Plant – 30%

General Plant Overheads are to be distributed on the basis of number of employees.

Show the distribution of overheads to production and service departments and determine the amount of production departments, overhead after redistribution. Carry through 2 cycles.

**Answer:**

**Distribution of Overheads for the Year Ended 30<sup>th</sup> June, 2013**

Particulars	Basis of allocation	Production Depts.		Service Depts.		Total ₹
		Machine Shop ₹	Packing ₹	General Plant ₹	Maintenance and Stores ₹	
Indirect labour	Direct	8,000	6,000	4,000	11,300	29,300
Maintenance Materials	Direct	3,600	1,400	2,040	3,000	10,040
Misc. Supplies	Direct	800	2,000	300	400	3,500
Supervisor's Salaries	Direct	----	----	8,000	----	8,000
Cost and payroll salaries	Direct	----	----	20,000	----	20,000
		12,400	9,400	34,340	14,700	70,840
Power	H.P. × Hours (7:1:2)	11,200	1,600	-----	3,200	16,000
Rent	Floor space (sq. ft)	10,000	4,000	2,000	8,000	24,000
Heat & Fuel	Radiator section	2,400	4,800	1,600	3,200	12,000
Insurances	Value of assets	1,280	400	20	300	2,000
Taxes	Value of assets	2,560	800	40	600	4,000
Depreciation	Value of assets	1,28,000	40,000	2,000	30,000	2,00,000
Total		1,67,840	61,000	40,000	60,000	3,28,840
Maintenance and Stores	Percentages	30,000	12,000	18,000	(-)60,000	
General Plant	No. of employees	33,143	16,571	(-)58,000	8,268	

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Maintenance etc.	Percentages	4,143	1,657	2,486	(-)8,286	
General Plant	No. of employees	1,657	829	(-)2,486	-----	
Total		2,36,783	92,057			

- (b) Meera Industries Limited is a single product organization having a manufacturing capacity of 6,000 units per week of 48 hours The output data vis-à-vis different elements of cost for three consecutive weeks are given below:

Units Produced	Direct Material	Direct Labour	Total Factory Overheads (Variable & Fixed)
2,400	₹ 4,800	₹ 6,000	₹ 37,200
2,800	5,600	7,000	38,400
3,600	7,200	9,000	40,800

As a Cost Accountant, you are asked by the Company Management to work out the selling price assuming an activity level of 4,000 units per week and a profit of 20% on selling price.

**Answer:**

$$\begin{aligned} \text{Variable Overheads Per unit} &= \text{Change in expenses / Change in output} \\ &= (38,400 - 37,200) / (2,800 - 2,400) \\ &= ₹ 3.00 \end{aligned}$$

This result can also be verified from the figures given for third week.

**Calculation of Fixed Overheads:**

Total Factory Overheads for 2,400 units	₹ 37,200
Less: Total Variable Overheads for 2,400 units (2,400 units × ₹ 3.00)	7,200
Total Fixed Overheads for the Company	30,000

This result can also be verified from the figures of next two weeks.

**Statement Showing Cost of 4,000 units**

Direct Material	4,000 units × ₹ 4,800 / 2,400	8,000
Direct Labour:	4,000 units × ₹ 6,000 / 2,400	10,000
Variable Overheads:	4,000 units × ₹ 3.00	12,000
Fixed Overheads:		30,000
Total Cost		60,000

Profit for 4,000 units:

Profit required is 20% on selling price or 25% of cost

Cost will be = (100-20) = ₹ 80.

Profit desired will amount to ₹ 60,000 × 25/100 = ₹ 15,000

This selling price for 4,000 units can be ascertained as under:

Cost of 4,000 units	₹ 60,000
Profit	₹ 15,000
Total Sales	₹ 75,000

Selling price per unit = 75,000 ÷ 4,000 = ₹ 18.75

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### Question.23

(a) Write a short note on Zero Based Budgeting.

Answer:

#### Zero Based Budgeting (ZBB)

It differs from the conventional system of budgeting. It starts from scratch or zero and not on the basis of trends or historical levels of expenditure. In the customary budgeting system, the last year's figures are accepted as they are, or cut back or increases are granted. Zero based budgeting on the other hand, starts with the premise that the budget for next period is zero so long the demand for a function, process, project or activity is not justified for each rupee from the first rupee spent. The assumptions are that without such a justification no spending will be allowed. The burden of proof thus shifts to each manager to justify why the money should be spent at all and to indicate what would happen if the proposed activity is not carried out and no money is spent.

The first step in the process of zero based budgeting is to develop an operational plan or decision package. A decision package identifies and describes a particular activity with a view to:

- (i) evaluate and allot ranking of the activity against other activities competing for the same scarce resources, and
- (ii) decide whether to accept or reject or amend the activity.

For this purpose, each package should give details of costs, returns, purpose, expected results, the alternatives available and a statement of the consequences if the activity is reduced or not performed at all.

The advantages of Zero based budgeting are:

- (a) Out of date and inefficient operations are identified.
- (b) Allows managers to promptly respond to changes in the business environment.
- (c) Instead of accepting the current practice, it creates a challenging and questioning attitude.
- (d) Allocation of resources is made according to needs and the benefits derived.
- (e) It has a psychological impact on all levels of management which makes each manager responsible for his actions taken

(b) The following information is available from the financial books of a company having a normal production capacity of 60,000 units for the year ended 31<sup>st</sup> March, 2014:

- Sales ₹ 10,00,000 (50,000 units).
- There was no opening and closing stock of finished units.
- Direct material and direct wages cost were ₹ 5,00,000 and ₹ 2,50,000 respectively.
- Actual factory expenses were ₹ 1,50,000 of which 60% are fixed.
- Actual administrative expenses were ₹ 45,000 which are completely fixed.
- Actual selling and distribution expenses were ₹ 30,000 of which 40% are fixed.
- Interest and dividends received ₹ 15,000.

You are required to:

- (i) Find out profit as per financial books for the year ended 31<sup>st</sup> March, 2014;
- (ii) Prepare the cost sheet and ascertain the profit as per cost accounts for the year ended 31<sup>st</sup> March, 2014 assuming that the indirect expenses are absorbed on the basis of normal production capacity; and
- (iii) Prepare a statement reconciling profits shown by financial and cost books.



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### Answer

#### (i) Profit & Loss Account (for the year ended 31<sup>st</sup> March, 2014) :

	₹		₹
To Direct Material	5,00,000	By Sales	10,00,000
		50,000 units	
To Direct Wages	2,50,000	By Interest and Dividends	15,000
To Actual factory expenses	1,50,000		
To Actual administrative expenses	45,000		
To Actual selling and distribution expenses	30,000		
To Profit	<u>40,000</u>		
	<u>10,15,000</u>		<u>10,15,000</u>

- (i) Profit as per financial books for the year ended 31<sup>st</sup> March, 1995 is ₹ 40,000 (Refer to working Note).

#### (ii) Cost Sheet (for the year ended 31<sup>st</sup> March, 2009)

	₹
Direct Material	5,00,000
Direct Wages	<u>2,50,000</u>
Prime Cost	7,50,000
Factory expenses:	
Variable : ₹ 60,000	
Fixed : $90,000 \times \frac{5}{6} = ₹ 75,000$	<u>1,35,000</u>
Works Cost :	8,85,000
Administrative expenses : $45,000 \times \frac{5}{6}$	<u>37,500</u>
Cost of production	9,22,500
Selling & distribution expenses	
Variable : ₹ 18,000	
Fixed : $12,000 \times \frac{5}{6} = ₹ 10,000$	<u>28,000</u>
Cost of Sales	9,50,500
Profit	<u>49,500</u>
Sales revenue	<u>10,00,000</u>

#### (iii) Statement of Reconciliation (Reconciling profit shown by Financial and Cost Accounts)

	₹	₹
Profit as per Cost Accounts	49,500	-
Add: Income from interest and dividends	<u>15,000</u>	
		64,500
Less: Factory expenses undercharged in Cost Accounts (₹ 1,50,000 – ₹ 1,35,000)	15,000	
Administrative expenses undercharged in Cost Accounts	7,500	

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(₹ 45,000 – ₹ 37,500)		
Selling & distribution expenses under-charged in Cost Accounts	2,000	24,500
(₹ 30,000 – ₹ 28,000)		—
Profit is per Financial Accounts		40,000

### Question.24

- (a) The Purchase Department of your organisation has received an offer of quantity discounts on its orders of materials as under:

Price per tonne (₹)	Tonnes
1,200	Less than 500
1,180	500 and less than 1,000
1,160	1,000 and less than 2,000
1,140	2,000 and less than 3,000
1,120	3,000 and above

The annual requirement for the material is 5,000 tonnes. The delivery cost per order is ₹ 1,200 and the stock holding cost is estimated at 20% of material cost per annum.

You are required to advise the Purchase Department the most economical purchase level.

- (b) From the following data for the year ended 31st December, 2013, calculate the inventory turnover ratio of the two items and put forward your comments on them,

	Material A	Material B
Opening stock 1/1/2013	₹ 10,000	₹ 9,000
Purchase during the year	52,000	27,000
Closing stock 31/12/2013	6,000	11,000

### Answer:

- (a) Statement showing the most economic purchase level

	400	500	1,000	2,000	3,000
1. Order Size (tone)					
2. No. of orders (annual requirement ÷ order size)	12.5	10	5	2.5	1.67
3. Value of order (Order size × price per tonne) (₹'000)	480	590	1,160	2,280	3,360
4. Average inventory (Value per order ÷ 2) (₹'000)	240	295	580	1,140	1,680
5. Ordering Cost (No. of cost x ordering cost per order) (₹1,200)	15,000	12,000	6,000	3,000	2,000
Carrying cost (20% of item 4)	48,000	59,000	1,16,000	2,28,000	3,36,000
Total of 5	63,000	71,000	1,22,000	2,31,000	3,38,000
Add: Annual cost of material (Annual demand ÷ Price per tonne)	60,00,000	59,00,000	58,00,000	57,00,000	56,00,000
Total annual cost	60,63,000	59,71,000	59,22,000	59,31,000	59,38,000

₹ 59,22,000 is the total minimum cost at 1,000 order size.

Therefore, the most economical purchase level is 1,000 tonne

- (b) First of all it is necessary to find out the cost of material consumed

Cost of Material consumed	Materials A	Materials B
Opening stock	₹10,000	₹9,000

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Add: Purchases	52,000	27,000
	62,000	36,000
Less: Closing Stock	6,000	11,000
Materials consumed	56,000	25,000
Average inventory : (Op. Stock + Cl. Stock) ÷ 2	8,000	10,000
Inventory Turnover ratio : (Consumption ÷ Avg. inventory)	7 times	2.5 times
Inventory Turnover (No. of days) : (No. of days in a year ÷ I. T. Ratio)	52 days	146 days

Comments: Material A is more fast moving than Material B.

**(c) List out the advantages of Cost control.**

**Answer:**

**Advantages of Cost Control**

The advantages of cost control are mainly as follows

- (i) Achieving the expected return on capital employed by maximising or optimizing profit
- (ii) Increase in productivity of the available resources
- (iii) Reasonable price of the customers
- (iv) Continued employment and job opportunity for the workers
- (v) Economic use of limited resources of production
- (vi) Increased credit worthiness
- (vii) Prosperity and economic stability of the industry

**Question.25**

**(a) From the records of an oil distributing company, the following summarized information is available for the month of March 2013:**

**Sales for the month: ₹19,25,000**

**Opening Stock as on 01-03-2013: 1,25,000 litres @ ₹6.50/litre.**

**Purchases (including freight and insurance):**

**March 5: 1,50,000 litres @ ₹7.10/litre**

**March 27: 1,00,000 litres @ ₹7.00/litre**

**Closing stock as on 31-3-13: 1,30,000 litres**

**General Administration expenses for the month: ₹45,000**

**On the basis of the above information, work out the following using FIFO and LIFO methods of inventory valuation assuming pricing of issues is being done at the end of the month after all receipts during the month :**

**(i) Value of closing stock as on 31-03-2013**

**(ii) Cost of goods sold during March 2013**

**(iii) Profit or loss for March 2013**

**Answer:**

**(i) Valuation of closing stock as on 31-3-2013**

(i) FIFO Method, (the closing stock will comprise the items purchased in the end)

1,00,000	Litres purchased on 27-3-13 @ ₹7.00	₹7,00,000
30,000	Litres from purchase made on 05-03-13 @ ₹7.10	2,13,000
1,30,000	Value of closing stock under FIFO method	9,13,000

(ii) **LIFO Method:** (The closing stock will comprise the item lying opening stock and purchased in the beginning)

1,25,000	Litres purchased on 27-03-13 @ ₹6.50	₹8,12,500
5,000	Litres from purchase made on 05-03-13 @ ₹7.10	35,500

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1,30,000	Value of closing stock under FIFO method	8,48,000
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### (ii) Cost of Goods Sold

	FIFO Method	LIFO Method
Opening stock as on 1-3-2013	₹8,12,500	₹8,12,500
Purchases made on 5th March	10,65,000	10,65,000
Purchases made on 27th March	7,00,000	7,00,000
Total	25,77,500	25,77,500
Less Closing stock as per (a)	9,13,000	8,48,000
Cost of material consumed	16,64,500	17,29,500
Add general Administration Expenses	45,000	45,000
Cost of goods sold	17,09,500	17,74,500

### (iii) Profits

	FIFO Method	LIFO Method
Cost of goods sold	₹17,09,500	₹17,74,500
Sales	19,25,000	19,25,000
Profit	2,15,500	1,50,500

### (b) Discuss how payment of wages will it be dealt with casual workers and workers employed on outdoor works in Cost Accounts.

#### Answer:

#### Casual and Outdoor Workers

Casual Workers are employed temporarily, for a short duration to cope with sporadic increase in volume of worker. If the permanent labour force is not sufficient to cope effectively with a rush of work, additional labour (casual workers) are employed to work for a short duration. Outdoor workers are those workers who do not carry out their work in the factory premises. Such workers either carry out the assigned work in their homes or at a site outside the factory.

Casual workers are engaged on a daily basis. Wages are paid to them either at the end of the day's work or after a periodic interval. Wages paid are charged as charged as direct or indirect labour cost depending on their identifiability with specific jobs, work orders, or department.

Rigid control should be exercised over the out-workers especially with regard as follows:

- (i) Reconciliation of materials drawn/ issued from the store with the output.
- (ii) Ensuring the completion of output during the stipulated time so as to meet comfortably the orders and contracts.

#### Question.26

#### (a) How costs can be classified based on function?

#### Answer:

Based on the functions, the cost can be classified into:

- (i) **Production Cost** – The production cost is inclusive of all direct material, direct labour, direct expenses and manufacturing expenses. It refers to costs concerned with manufacturing activity which starts with supply of material and ends with primary packing of the product.
- (ii) **Administration Cost** – The Administration cost is incurred for carrying the administrative function of the organization i.e. cost of policy formulation and its implementation to attain the objectives of the organization.

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(iii) **Selling and Distribution Cost** – The Selling cost refers to the cost of selling function i.e. the cost of activities relating to create and stimulate demand for company's products and to secure orders. The Distribution costs will be incurred on goods made available to the customers. These costs include the cost of maintaining and creating demand of product, making the goods available in the hands of customer.

(iv) **Research and Development Cost** – The Research cost is the cost of searching for new products, new manufacturing process, improvement of existing products, processes or equipment and the Development cost is the cost of putting research result on commercial basis.

(b) **State the method of Costing suitable for the following industries. Also mention the cost unit for each.**

(i) **Textile Mills**

(ii) **Electricity Undertakings**

(iii) **Automobile repair workshops**

(iv) **Brick making**

(v) **Cement manufacture**

(vi) **Passenger Bus Service**

**Answer:**

The method of Costing and Cost Units applicable against each of the industries are given below:

Industry	Method of Costing	Cost Unit
Textile Mills	Process Costing	Kg of yarn for Spinning Metre of cloth for Weaving
Electricity Undertakings	Operating Costing	KWH.
Automobile repair workshops	Job Costing	Vehicle
Brick making	Single Output Costing	1000 bricks
Cement Manufacturing	Process Costing	Tonne
Passenger Bus Service	Operating Costing	Passenger Kilometre

**Question.27**

(a) **State the circumstances in which time rate system of wage payment can be preferred in a factory. What are the advantages of this system?**

**Answer:**

In time based wage payment plans, standard time is predetermined and the efficiency of each individual worker is assessed to compensate them for higher efficiency in work as compared to standard time set. These plans can be suitably applied in the following circumstances:

(i) Where the output of an individual worker cannot be measured reasonably.

(ii) Where the work is required to be closely supervised.

(iii) Where the quality of work is more important.

(iv) Where output of an individual worker is not in his control.

(v) Where increase in output is negligible compares to the incentive.

The advantages of time rate remuneration plans are as follows:

(i) It is commonly recognized by all trade unions as well as worker

(ii) It is a guaranteed income assured to the worker

(iii) It is very easy to understand and simple to calculate the earnings of worker

(iv) It involves less clerical work and detailed records are not necessary.

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(v) Since the production is not the criteria for calculation of wages, tools and materials are handled carefully. Wastage is also minimized.

(b) How do you deal with the following in Cost Accounts?

- (i) Data processing cost.
- (ii) Spoiled Work

Answer:

The treatment will be as follows:

- (i) **Data Processing Control:** In the environment of processing information with the help of computers, the data processing cost represents the cost incurred for processing data relating to accounts, secretarial, personnel, finance, marketing, sales etc. This may be done either utilizing in house facilities or hiring outside facilities. The cost incurred is accumulated for separate service centre if in-house facilities are made available. Where the costs of data processing centre or hiring charges are identifiable to a particular department or activity it should be charged with its portion of cost. In case of common costs incurred for service of all departments, the data processing cost should be apportioned to different departments on equitable basis.
- (ii) **Spoiled Work:** The loss by spoilage may be inherent to the nature of the product or it may be caused by normal circumstances. If it is of an inherent nature and cannot be avoided, it would be charged either to the specific job in which it is accrued or should be recovered as overhead charge from the entire production, where there is no specific job or work order. In case it has been caused by abnormal circumstances, it should be charged to the Costing Profit and Loss Account. While accounting for loss by spoilage, any proceeds of the scrap should be accounted for either as a deduction from spoilage or by crediting it to the account which has been debited with the spoilage.

(c) Distinction between Allocation & Apportionment.

Answer:

### Distinction between Allocation & Apportionment

Although the purpose of both allocation and apportionment is identical, i.e to identify or allot the costs to the cost centres or cost unit, both are not the same.

Allocation deals with the whole items of cost and apportionment deals with proportion of items of cost.

Allocation is direct process of departmentalization of overheads, where as apportionment needs a suitable basis for sub-division of the cost.

Whether a particular item of expense can be allocated or apportioned does not depends on the nature of expense, but depends on the relation with the cost centre or cost unit to which it is to be charged.

### Question.28

(a) At Ltd engineering Co. having 25 different types of automatic machines, furnishes you the following data for 2013-14 in respect of machine B:

- |                                |                    |
|--------------------------------|--------------------|
| 1. Cost of the machine         | ₹ 50,000           |
| Life - 10 years                | Scrap value is nil |
| 2. Overhead expenses are:      |                    |
| Factory Rent                   | ₹50,000p.a.        |
| Heating and Lighting           | ₹40,000            |
| Supervision                    | ₹1,50,000 p.a      |
| Reserve equipment of machine B | ₹ 5,000 p.a.       |

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Area of the factory	80,000 sq.ft.	
Area occupied by machine B	3,000 sq.ft.	
3. Wages of operator is ₹24 per day of 8 hours including all fringe benefits. He attends to one machine when it is under set up and two machines while under operation.		
4. Estimated production hours	3,600 p.a.	
Estimated set up time	400 hrs.p.a.	
Power 0.5 per hour		
Prepare a schedule of comprehensive machine hour rate and find the cost of the following jobs:		
	JOB 1102	JOB 1308
Set up time (Hrs.)	80	40
Operation time (Hrs.)	130	160

**Answer:**

### Computation of machine hour rate when machine is in operation

Particulars		Amount
<b>Standing Charges:</b>		
Rent	$50,000 \times 3/80$	= 1875
Heating & Lighting	$40,000 \times 3/80$	= 1500
Supervision	$1,50,000 \times 1/25$	= 6000
Reserve equipment		= <u>5000</u>
		= 14375
Cost per hour	$14375/4000$	3.59
<b>Machine Expenses:</b>		
Depreciation	$[50,000 \div (10 \times 3600)]$	= 1.39
Wages	$[24/8 \times 1/2]$	= 1.50
Power		= 0.50
<b>Machine Hour Rate</b>		<b>6.98</b>

### Computation of machine hour rate when machine is under setup

Particulars		Amount
<b>Standing Charges:</b>		
Rent	$50,000 \times 3/80$	= 1875
Heating & Lighting	$40,000 \times 3/80$	= 1500
Supervision	$1,50,000 \times 1/25$	= 6000
Reserve equipment		= <u>5000</u>
		= 14375
Cost per hour	$14375/4000$	3.59
<b>Machine Expenses:</b>		
Depreciation	$[50,000 \times (10 \times 3600)]$	= 1.39
Wages	$[24/8]$	= 3.00
Power		= ----
<b>Machine Hour Rate</b>		<b>7.98</b>

### Computation of cost of the jobs

Particulars	Job 1102	Job 1308

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Setup cost Job 1102 : 80 x 7.98 Job 1308 : 40 x 7.98	638.40	319.20
Operation Cost Job 1102 : 130 x 6.98 Job 1308 : 160 x 6.98	907.40	1,116.80
<b>Total Cost of the Job</b>	<b>1,545.80</b>	<b>1,436.00</b>

(b) Explain the scope of Cost Accountancy.

Answer:

### Scope of Cost Accountancy

The scope of Cost Accountancy is very wide and includes the following:-

- (i) Cost Ascertainment: The main objective of Cost Accounting is to find out the Cost of product / services rendered with reasonable degree of accuracy.
- (ii) Cost Accounting: It is the process of Accounting for Cost which begins with recording of expenditure and ends with preparation of statistical data.
- (iii) Cost Control: It is the process of regulating the action so as to keep the element of cost within the set parameters.
- (iv) Cost Reports: This is the ultimate function of Cost Accounting. These reports are primarily prepared for use by the management at different levels. Cost reports helps in planning and control, performance appraisal and managerial decision making.
- (v) Cost Audit: Cost Audit is the verification of correctness of Cost Accounts and check on the adherence to the Cost Accounting plan. Its purpose is not only to ensure the arithmetic accuracy of cost records but also to see the principles and rules have been applied correctly.

To appreciate fully the objectives and scope of Cost Accounting, it would be useful to examine the position of Cost Accounting in the broader field of general accounting and other sciences. i.e Financial Accounting , Management Accounting, Engineering and Service Industry.

### Question.29

(a) 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, and 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:-



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$$\text{Idle capacity cost} = \frac{\text{Aggregate overhead related to plant}}{\text{Normal plant capacity}} \times \text{Idle Capacity}$$

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 utilized.
- (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.

- (b) **Sunshine Ltd. buy and sell finished goods after carrying out some operations. They began the year with 3,000 units valued at ₹ 3 per unit. During the year they sold 25,000 units for an average sale price of ₹ 10 per unit. Purchases were as follows :**

**4,000 units @ ₹ 5 per unit**

**16,000 units @ ₹ 6 per unit**

**6,000 units @ ₹ 7 per unit**

**The current replacement cost of the unit is ₹ 8 and the Company's Taxation Manager advises that there may be significant tax advantages of purchasing at year-end at this price, as the company uses the LIFO method and has got the acceptance of the tax authorities for consistently using this method in its assessments. The corporate tax averages 30%.**

**Bearing in mind that the warehouse space is limited to 10,000 units, work out the tax advantages and the cost of year-end purchasing under this situation given that the operating expenses for the year are ₹ 37,000.**

**Answer:**

### **Statement showing closing stock at the year end**

Total purchases during the year	26,000 units
Opening stock	<u>3,000</u>
	29,000
Less: Units sold during the year	<u>25,000</u>
Total closing stock	<u>4,000</u>

Storage capacity is 10,000 units, year-end purchases can be up to 6,000.

### **Profit statement without making year-end purchases**

(LIFO Method)	
Sales (25,000 x 10)	₹ 2,50,000
Less: Cost of goods sold	
6,000 x 7 = ₹ 42,000	
16,000 x 6 = ₹ 96,000	
3,000 x 5 = ₹ <u>15,000</u>	<u>1,53,000</u>
Gross profit	97,000
Less: Operating expenses (given)	<u>37,000</u>
Taxable income	60,000
Less: Income Tax @ 30%	<u>18,000</u>
Profit after tax	<u>42,000</u>

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### Profit statement after year-end purchases of 6,000 units at current replacement cost

Sales (25,000 x 10)	2,50,000
Less: Cost of goods	
6,000 x 8 = 48,000	
6,000 x 7 = 42,000	
13,000 x 6 = <u>78,000</u>	<u>1,68,000</u>
Gross profit	82,000
Less: Operating expenses	<u>37,000</u>
Taxable income	45,000
Less: income tax @ 30%	<u>13,500</u>
Profit after tax	<u>31,500</u>

Tax advantage: By accepting the advice of Taxation Manager of Sunshine Ltd. will be able to effect a tax saving of ₹ 4,500 i.e. ₹ 18,000 – ₹ 13,500 = ₹ 4,500.

Cost of year-end purchases: 6,000 units @ ₹ 8 =	48,000
Less: Tax advantage	<u>4,500</u>
Effective cost of closing inventory	<u>43,500</u>

Effective cost per unit of year-end purchase ₹ 43,500 ÷ 6,000 = ₹ 7.25.

### Question.30

- (a) A machine shop has 8 identical Drilling Machines manned by 6 operators. The machines cannot be worked without an operator wholly engaged on it. The original cost of all these 8 machines works out to ₹ 8 lakhs. These particulars are furnished for a six month 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 day of 8 hours	₹ 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% on value of machines.

Insurance ₹ 40,000.

Depreciation 10% on 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.

### Answer:

Before computing the comprehensive machine hour rate, it is necessary to find out the total machine hours utilized and total wages paid to the operators.

#### Computation of total machine hours utilized

Normal available hours p.m. per operator	208 hours
Less: Unutilised hours due to:	
Absenteeism	18 hours
Leave	20
Idle time	<u>10</u>
	48

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Total hours utilized p.m. per operator	160
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It is given in the question that the machines cannot work without an operator wholly engaged on it.

Therefore, hours utilized for 6 operators, i.e., 5,760 hrs. represents the total machine hours.

Total wages to 6 operators for 6 months

Average rate of wages per hour = ₹ 20 ÷ 8 hrs. = ₹ 2.50.

Normal hours for which wages are to be paid = 208 – 18 or 190 hrs.

Wages for 6 months for 6 operators @ ₹ 2.50/hr. = 190 x 6 x 6 x 2.50 or ₹ 17,100.

### Computation of Comprehensive Machine hour rate for the Machine Shop

Particulars	₹
Operators wages (as above)	17,100
Production Bonus (15% of wages)	2,565
Power consumed	8,050
Supervision and indirect labour	3,300
Lighting and electricity	1,200
Repairs and maintenance (3% of ₹ 8 lakhs) ÷ 2	12,000
Insurance (given for 12 months; reduced to 50% for 6 months)	20,000
Depreciation for 6 months	40,000
Other sundry works expenses for 6 months	6,000
General management expenses for 6 months	27,265
<b>Total overheads for 6 months</b>	<b>1,37,480</b>

Comprehensive Machine Hour Rate = 1,37,480 ÷ 5,760 hrs. = ₹ 23.87 per hr.

- (b) Super class Co. Ltd. Has three production department X, Y and Z and two service department A and B.

The following estimated figures for a certain period have been made available:

<b>Rent, Rates and Taxes</b>	<b>₹ 10,000</b>
<b>Lighting and electricity</b>	<b>1,200</b>
<b>Indirect Wages</b>	<b>3,000</b>
<b>Power</b>	<b>3,000</b>
<b>Depreciation of Machinery</b>	<b>20,000</b>
<b>Other expenses and sundries</b>	<b>20,000</b>

Following are further details which are also available:-

	Total	X	Y	Z	A	B
<b>Floor Space (Sq. mts.)</b>	10,000	2,000	2,500	3,000	2,000	500
<b>Light Point (Nos.)</b>	120	20	30	40	20	10
<b>Direct Wages ₹</b>	20,000	6,000	4,000	6,000	3,000	1,000
<b>Horsepower of machines</b>	300	120	60	100	20	----
<b>Cost Of Machinery (₹)</b>	1,00,000	24,000	32,000	40,000	2,000	2,000
<b>Working hours</b>		4,670	3,020	3,050	-----	-----

The expenses of the service departments A and B are to be allocated as follows:

	X	Y	Z	A	B
<b>A</b>	20%	30%	40%	----	10%
<b>B</b>	40%	20%	30%	10%	-----

You are required to calculate the overhead absorption rate per hour in respect of the three production departments.

What will be the total cost of an article with material cost of ₹80 and direct labour cost of ₹ 40 which passes through x, Y and Z for 2,3 and 4 hours respectively?

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**Answer:**

### Departmental Primary Distribution Summary

Items	Basis of Apportionment	Total	Production Dept.			Service Dept.	
			X	Y	Z	A	B
Rent, Rates and Taxe	Floor Area	₹10,000	2,000	2,500	3,000	2,000	500
Lighting and Electricity	Light Point	1,200	200	300	400	200	100
Indirect Wages	Direct Wages	3,000	900	600	900	450	150
Power	Horse Power	3,000	1,200	600	1,000	200	-----
Depreciation of Machinery	Cost of Machine	20,000	4,800	6,400	8,000	400	4000
Other expenses and Sundries	Direct Wages	20,000	6,000	4,000	6,000	3,000	1,000
Direct Wages	Only Service Dept.	4,000	-----	-----	-----	3,000	1,000
		61,200	15,100	14,400	19,300	9,250	3,150

### Secondary Distribution

	X	Y	Z	A	B
A	1,850	2,775	3,700	(9,250)	925
B	1,630	815	1,222	408	(4,075)
A	82	122	163	(408)	41
B	16	8	13	4	(41)
A	2	-----	2	(4)	-----
Sub-total	3,580	3,720	5,100		
Grand total (₹)	18,680	18,120	24,400		
Working Hours	4,670	3,020	3,050		
Rate per hour (₹)	4	6	8		

### Statement of Cost per Unit

Materia Cost	₹80	
Labour	₹40	₹120
Overhead		
X= 2 × 4	8	
Y= 3 × 6	18	
Z= 4 × 8	32	58
Total Productive Cost		178