

# Revisionary Test Paper\_June2018

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Intermediate

Group I

**Paper 8 : COST ACCOUNTING**  
**(SYLLABUS – 2016)**

## Objective Question

1. (a) M.C.Q.

1. Joint Cost is suitable for-
  - A. Infrastructure Industry
  - B. Ornament Industry.
  - C. Oil Industry
  - D. Fertilizer Industry
2. Which of the following is considered as accounting record?
  - A. Bin Card
  - B. Bill of material
  - C. Store Ledger
  - D. None of these
3. Which of the following is considered as normal loss of material?
  - A. Pilferage
  - B. Loss due to accident
  - C. Loss due to careless handling of material
  - D. None of these.
4. Cost of idle time arising due to non availability of raw material is
  - A. Charged to costing profit and loss A/c
  - B. Charged to factory overheads
  - C. Recovered by inflating the wage rate
  - D. Ignored
5. Time and motion study is conducted by the
  - A. Time -keeping department
  - B. Personnel department
  - C. Payroll department
  - D. Engineering department
6. Time keeping refers to
  - A. Time spent by workers on their job
  - B. Time spent by workers in factory

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- C. Time spent by workers without work  
D. Time spent by workers on their job
7. Royalty paid on sales ₹89,000 and Software development charges related to product is ₹22,000. Calculate Direct Expenses.  
A. 1,11,100                      B. 1,11,000                      C. 111,110                      D. 1,10,000
8. Direct Expenses does not meet the test of materiality can be ——— part of part of overhead.  
A. Treated                      B. Not treated                      C. All of the these                      D. None of these
9. The allotment of whole items of cost of centres or cost unit is called  
A. Cost allocation  
B. Cost apportionment  
C. Overhead absorption  
D. None of the above
10. When the amount of under-or-over-absorption is significant, it should be disposed of by  
A. Transferring to costing profit and loss A/c  
B. The use of supplementary rates  
C. Carrying over as a deferred charge to the next accounting year  
D. None of above
11. Charging to a cost center those overheads that result solely for the existence of that cost Center is known as  
A. Allocation                      B. Apportionment                      C. Absorption                      D. Allotment
12. CAS 21 stands for  
A. Capacity Determination  
B. Joint Cost  
C. Direct Expenses  
D. None of these.
13. Standards deals with determination of averages/ equalized transportation cost-  
A. CAS 6                      B. CAS 22                      C. CAS 9                      D. CAS 5
14. Standards deals with the principles and methods of determining depreciation and amortization cost-  
A. CAS 9                      B. CAS 12                      C. CAS 15                      D. CAS 16
15. Integral accounts eliminate the necessity of operating  
A. Cost Ledger control account  
B. Store Ledger control account  
C. Overhead adjustment account  
D. None of the above

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16. Equivalent production of 1,000 units, 60% complete in all respects, is:  
A. 1000 units      B. 1600 units      C. 600 units      D. 1060 units
17. In a process 8000 units are introduced during a period. 5% of input is normal loss. Closing work in progress 60% complete is 1000 units. 6600 completed units are transferred to next process. Equivalent production for the period is:  
A. 9000 units      B. 7440 units      C. 5400 units      D. 7200 units
18. Standard price of material per kg is ₹20, standard usage per unit of production is 5 kg. Actual usage of production 100 units is 520 kgs, all of which was purchase at the rate of ₹ 22 per kg. Material cost variance is  
A. 2,440 (A)  
B. 1,440 (A)  
C. 1,440 (F)  
D. 2,300 (F)
19. Standard cost of material for a given quantity of output is ₹15,000 while the actual cost of material used is ₹16,200. The material cost variance is:  
A. ₹1,200 (A)  
B. ₹16,200 (A)  
C. ₹ 15,000 (F)  
D. ₹ 31,200 (A)
20. The basic difference between a fixed budget and flexible budget is that a fixed budget.....  
A. is concerned with a single level of activity, while flexible budget is prepared for different levels of activity  
B. Is concerned with fixed costs, while flexible budget is concerned with variable costs.  
C. is fixed while flexible budget changes  
D. None of these.

**Answer :**

- |         |         |         |          |         |         |
|---------|---------|---------|----------|---------|---------|
| 1. (C), | 2. (C)  | 3. (C), | 4. (A),  | 5. (D), | 6. (B), |
| 7. (B), | 8. (A), | 9. (A), | 10. (B), | 11.(A), | 12.(D), |
| 13.(D), | 14.(D), | 15.(A), | 16.(C),  | 17.(D), | 18.(B), |
| 19.(A), | 20. (A) |         |          |         |         |

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(b) Match the following:

Column 'A'		Column 'B'	
1.	Pollution Control Cost	A	CAS 18
2.	Joint Cost	B	CAS 2
3.	Capacity Determination	C	CAS 10
4.	Direct Expenses	D	CAS 14
5.	Research and Development Cost	E	CAS 19
6	Donations	F	Decision Package
7	Notional Rent charged to	G	Difference in Fixed Cost/Difference in contribution per unit
8	The method which is followed for evaluation of equivalent production when prices are fluctuating	H	Average price method
9	Indifference Point (in Unit)	I	Expenses debited only in cost accounts
10	Zero based budgeting	J	Appropriations only in financial accounts

Answer :

1. (D),                      2. (E)                      3. (B),                      4. (C),                      5. (A),  
 6. (J),                      7. (I),                      8. (H),                      9. (G),                      10. (F) ]

(C) True/False

1. ABC analysis is not based on the concept of selection inventory management.
2. In India, if a worker works for more than 8 hours on any day or for more than 40 hours in a week, he is treated to be engaged in overtime.
3. If an expense can be identified with a specific cost unit, it is treated as direct expense.
4. CAS 9 is for Direct Expenses as issued by the Cost Accounting Standards Board (CASB) of the Institute of Cost Accountants of India.
5. The principal based used for applying factory overhead are: units of production, material cost, direct wages, direct labour hours and machine hours.
6. The balancing in costing profit and loss account represents under or over absorption of overheads.
7. At breakeven point, contribution available is equal to total fixed cost.
8. Standards costing are more profitability employed in job order industries than in process type industries.
9. To achieve the anticipated targets, Planning, Co-ordination and Control are the important main tasks of management, achieved through budgeting and budgetary control.
10. A flexible budget recognises the difference between fixed, semi-fixed and variable cost and is designed to change in relation to the change in level of activity.

Answer :

1. (F),    2. (F)    3. (T),    4. (F),    5. (F),    6. (F),    7. (T),    8. (F),    9. (T),    10. (T)

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## (d) Fill in the blank

1. Store Ledger is kept and maintained in \_\_\_\_\_.
2. In a company there were 1200 employee on the rolls at the beginning of a year and 1180 at the end. During the year 120 persons left services and 96 replacements were made. The labour turnover to flux method is \_\_\_\_\_ %.
3. Ideal time arises only when workers are paid on \_\_\_\_\_ basis.
4. Normal idle time costs should be change to \_\_\_\_\_ which that due to abnormal reasons should be change to \_\_\_\_\_.
5. Direct Expenses incurred for brought out resources shall be determined at \_\_\_\_\_.
6. Direct Expenses incurred lump-sum shall be \_\_\_\_\_.
7. Overhead incurred ₹16,000 and overhead absorbed ₹15,300. There is under absorption of ₹\_\_\_\_\_.
8. Under integrated accounting system, the accounting entry for payment of wages is to debit \_\_\_\_\_ and to credit cash.
9. Two principle method of evaluation of equivalent production are \_\_\_\_\_ and \_\_\_\_\_.
10. When sales are ₹300,000 and variable cost is ₹180,000, P/V ratio will be \_\_\_\_\_ (40%)

## Answer :

1. Cost Office;
2. 9.08;
3. Time;
4. Production overhead + Costing P/L A/c;
5. Invoice Price;
6. Amortized;
7. ₹700;
8. Wages control Accounts;
9. FIFO and Average method,
10. 40%)

## Materials:

**Q2: A company manufactures a special product which requires a component 'Gamma'. The following particulars are collected for the year 2017.**

- |                             |                |
|-----------------------------|----------------|
| 1. Annual demand of Gamma   | 10,000 units   |
| 2. Cost of placing an order | ₹200 per order |
| 3. Cost per unit of Alpha   | ₹ 400          |
| 4. Carrying cost % p.a.     | 25%            |

The company has been offered a quantity discount of 5% on the purchase of 'Gamma' provided the order size is 5,000 components at a time.

Required:

- (a) Compute the economic order quantity.
- (b) Advise whether the quantity discount offer can be accepted.

## Answer: 2

(a) Calculation of Economic Order Quantity

$$EOQ = \sqrt{2AO/C}$$

Where, A = Annual requirement for inventory = 10,000 units

O = Ordering cost = ₹200 per order

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Cost per Unit = ₹400

C = Carrying cost per unit per annum = 25% of 400 = ₹100

$$EOQ = \sqrt{\frac{2 \times 10,000 \text{ units} \times ₹200}{100}} = 200 \text{ units}$$

(b) Evaluation of Profitability of Different Options of Order Quantity

(i) When EOQ is ordered

Purchase Cost	(10,000 units × ₹ 400)	40,00,000
Ordering Cost	[(10,000 units / 200 units) × ₹ 200]	10,000
Carrying Cost	(200 units × ₹ 400 × ½) × 25/100	10,000
<b>Total Cost</b>		<b>40,20,000</b>

(ii) When quantity discount is accepted

Purchase Cost	(10,000 units × ₹ 380)	38,00,000
Ordering Cost	[(10,000 units / 5000 units) × ₹ 200]	400
Carrying Cost	(5000 units × ₹ 380 × ½) × 25/100	2,37,500
	<b>Total Cost</b>	<b>40,37,900</b>

Advise:

The total cost of inventory is lower if EOQ is adopted. Hence, the company is advised not to accept the quantity discount.

**Q3: Xpro Ltd. is the manufacturers of LED display screen for T.V. The following are the details of their operation during the year 2017:**

Average monthly market demand	4,000 LED display
Ordering Cost	₹500 per order
Inventory carrying cost	20% per annum
Cost of LED display screen	₹ 2000 per LED
Normal usage	500 units per week
Minimum usage	250 units per week
Maximum usage	1000 units per week
Lead time to supply	6 – 8 weeks

The Re-order Quantity is 50 LED display screen less than the Economic Order Quantity.

Compute from the above:

- (i) Re-order level
- (ii) Re-order Quantity
- (iii) Maximum level of stock
- (iv) Minimum level of stock
- (v) Calculate the impact on the profitability of the company by not ordering the EOQ.
- (vi) Economic order quantity. If the supplier is willing to supply quarterly 1,500 units at a discount of 5% is it worth accepting?

**Answer: 3**

**Working Notes:**

$$A = \text{Annual usage of LED display} = \text{Normal usage per week} \times 52 \text{ weeks}$$

$$= 500 \text{ tubes} \times 52 \text{ weeks} = 26,000 \text{ LED}$$

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O = Ordering cost per order = ₹ 500 per order  
 C = Inventory carrying cost per unit per annum  
 = 20% x ₹ 2,000 = ₹ 400 per unit, per annum

**Economic Order Quantity:**

$$EOQ = \sqrt{\frac{2AO}{C}} = \sqrt{\frac{2 \times 26,000 \times 500}{400}} = 255 \text{ units (approx.)}$$

**(i) Re-order Level:**

= Maximum Consumption × Maximum Re-order Period  
 = 1000 units × 8 weeks = 8,000 units.

**(ii) Re-order Quantity**

= EOQ-50 units = 255 - 50 = 205 units

**(iii) Maximum level of Stock:**

= Re-order Level + Re-order Quantity – (Min. Usage x Min. - Re-order Period)  
 = 8,000 units + 205 units – (250 units × 6 weeks)  
 = 6,705 units.

**(iv) Minimum level of Stock:**

= Re-order Level - Normal Usage × Average Re-order Period  
 = 8,000 units - 500 units × 7 weeks = 4,500 units.

**(v) The impact on the profitability of the company by not ordering the EOQ**

	When purchasing the ROQ	When purchasing the EOQ
Order Quantity	205 units	255 units
No of orders a year	26,000/205 = 126.8 or 127 orders	26,000/255 = 101.96 or 102 orders
Ordering cost	127 × 500 = ₹63,500	102 × 500 = ₹ 51,000
Average Inventory	205/2 = 102.5 units	255/2 = 127.5 units
Carrying Cost	102.5 × 400 = ₹41,000	127.5 × 400 = ₹ 51,000
Total Cost	₹ 1,04,500	₹1,02,000

**(vi) If the supplier is willing to supply 1,500 units at a discount of 5%**

Total cost (when order size is 1,500 units)  
 = Cost of 26,000 units + Ordering cost + Carrying cost.  
 = 26,000 units x ₹ 1900 + {(26,000/1,500) × 500} + {(1500 × 20% of 1900)/2}  
 = ₹ 4,94,00,000 + ₹ 8,667 + ₹ 2,85,000  
 = ₹ 49,693,667

**Total cost (when order size is 255 units)**

26,000 units x ₹ 2000 + {(26,000/255) × 500} + {(255 × 20% of 2000)/2}  
 = ₹ 52,00,000 + 50,980 + 51,000  
 = ₹ 53,01,980

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**Labour:**

Q 4.

M/s. Maheswari Bros. Wants to ascertain the profit lost during the year 2016-17 due to increased labour turnover. They have given you the following information:

- (i) Training period of the new recruits is 60,000 hours. During this period their productivity is 75% of the experienced workers. Time required by an experienced worker is 10 hours per unit.
- (ii) 20 % of the output during training period was defective. Cost of rectification of a defective unit was ₹ 40.
- (iii) Potential productive hours lost due to delay in recruitment were 1, 20, 000 hours.
- (iv) Selling price per unit is ₹ 400 and P/V ratio is 20%.
- (v) Settlement cost of the workers leaving the organisation was ₹ 4, 00, 000.
- (vi) Training cost was ₹ 2, 00, 000.
- (vii) Recruitment cost was ₹ 1, 60, 000.

You are required to calculate the profit lost by the company due to increased labour turnover during the year 2016-17.

Answer: 4

Output by experienced workers in 60,000 hours =  $(60,000/10) = 6,000$  units

Output by new recruits = 75% of 6000 = 4,500 units

Loss of output =  $6,000 - 4,500 = 1,500$  units

Total loss of output = Due to delay recruitment + due to inexperience  
 =  $(1,20,000/10) + 1500 = 12,000 + 1,500 = 13,500$  units

Contribution per unit = 20% of ₹ 400 = ₹80

Total contribution lost = ₹80 × 13,500 units = ₹10,80,000

Cost of repairing defective units =  $4,500 \times 0.2 \times ₹40 = ₹ 36,000$

**Profit forgone due to labour turnover**

	₹
Loss of Contribution	10,80,000
Cost of repairing defective units	36,000
Recruitment cost	1, 60, 000
Settlement cost of workers leaving	4, 00, 000
Profit forgone in 2016-17	16,76,000

Q 5. Calculate the earnings of two workers X and Y for every 200 units of output from the following information-

- Standard Conversion Costs of the product: ₹60 per unit.
- Overheads -150% of Wages Cost, Wage Rate: Worker A - ₹10 per hour, Worker B - ₹12 per hour.
- Time taken to complete 200 units by Worker A is 400 hours and by Worker B is 380 hours.
- There is an incentive system based on the reduction of Labour and Overhead Cost in the following scale –

Reduction upto	15%	20%	25%
Earns a bonus	10% of wages	20% of wages	25% of wages

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Answer: 5

Worker	A	B
(a) Production	200 units	200 units
(b) Time taken	400 hours	380 hours
(c) Wage Rate per hour	₹10	12
(d) Wages Cost (before Bonus) = (b) x (c)	₹4,000	₹4,560
(e) Overhead Cost at 150% of Labour = (d) x 150%	₹ 6,000	₹ 6,840
(f) Total Conversion Cost = Wages + OH = (d) + (e)	₹10,000	₹ 11,400
(g) Standard Conversion Cost at ₹ 60 per hour	₹ 12,000	₹ 12,000
(h) Reduction in Conversion Cost = (g) - (f)	₹ 2,000	₹ 600
(i) % of Reduction to Standard Cost = (h) ÷ (g)	16.67%	5%
(j) Therefore Eligible Bonus %	20%	10%
(k) Bonus Amount (Wages x Bonus %) = (d) x (j)	₹ 800	₹ 456
(l) So, Earnings = Wages + Bonus = (d) + (k)	₹ 4,800	₹ 5,016

## Direct Expenses:

Q 6.

A manufacturing unit produces two products 'Exe' and 'Dee'. The following information is furnished:

Particulars	Product Exe	Product Dee
Units produced ( Qty)	40,000	25,000
Units Sold (Qty)	30,000	20,000
Machine Hours utilised	10,000	5,000
Design charges	25,000	20,000
Software development charges	28,000	40,000

Royalty paid on sales ₹1, 50, 000 [ @ ₹3 per unit sold, for both the products]; Royalty paid on units produced ₹65,000 [ @ Re.1 per unit purchased, for both the products]. Hire charges of equipment used in manufacturing process of Product Exe only ₹16,000, Compute the Direct Expenses.

Answer: 6

Computation of Direct Expenses

Particulars	Product Exe	Product Dee
Royalty paid on Sales (30000*3) (20000*3)	90,000	60,000
Add Royalty paid on units produced (40,000*1) (25,000*1)	40,000	25,000
Add Hire charges of equipment used in manufacturing process of Product 'Exe' only	16,000	—
Add Design Charges	25,000	20,000
Add Software development charges related to production	28,000	40,000
Direct Expenses	1,99,000	1,45,000

Note:

- (i) Royalty on production and royalty on sales are allocated on the basis of units produced and units sold respectively. These are directly identifiable and traceable to the number of units produced and units sold. Hence, this is not an apportionment.
- (ii) No adjustments are made related to units held, i.e. closing stock.

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## Overheads:

Q 7. A company is making a study of the relative profitability of the two products – M and N. In addition to direct costs, indirect selling and distribution costs to be allocated between the two products are as under:

	₹
Insurance charges for inventory (finished)	1,04,000
Storage costs	1,68,000
Packing and forwarding charges	9,00,000
Salesmen salaries	8,00,000
Invoicing costs	4,50,000

Other details are as under-

	Product M	Product N
Selling price per unit (₹)	500	1,000
Cost per unit (exclusive of indirect selling and distribution costs) (₹)	300	600
Annual sales in units	10,000	8,000
Average inventory (units)	1,000	800
Number of invoices	2,500	2,000

One unit of product M requires a storage space twice as much as product N. The cost to packing and forwarding one unit is the same for both the products. Salesmen are paid salary plus commission @ 5% on sales and equal amount of efforts are put forth on the sales of each of the product.

Required

- (i) Set-up a schedule showing the apportionment of the indirect selling and distribution costs between the two products.
- (ii) Prepare a statement showing the relative profitability of the two products.

Answer: 7

- (i) Schedule showing the apportionment of the indirect selling and distribution costs between the two products:

Items	Basis of apportionment	Total ₹	Products	
			M ₹	N ₹
Insurance charges	Average inventory value (1000 × ₹ 500) : (800 × ₹ 1000)	1,04,000	40,000	64,000
Storage cost	Average Inventory storage space (1000 × 2) : (800 × 1)	1,68,000	1,20,000	48,000
Packing & Forwarding charges	Annual sales in units (10000) : (8000)	9,00,000	5,00,000	4,00,000
Salesmen salaries	Efforts of Salesmen (1:1)	8,00,000	4,00,000	4,00,000
Salesmen Commission	Annual sales value (5:8)	6,50,000	2,50,000	4,00,000
Invoicing Costs	No. of invoices (2500 : 2000)	4,50,000	2,50,000	2,00,000
		<b>30,72,000</b>	<b>15,60,000</b>	<b>15,12,000</b>

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(ii) Statement showing the relative profitability of the two products:

Products	M ₹	N ₹
Annual sales value	50,00,000 (10,000 units × ₹ 500)	80,00,000 (8,000 units × ₹ 1000)
Less: Cost of sales	30,00,000 (10,000 units × ₹ 300)	48,00,000 (8,000 units × ₹ 600)
Gross Profit	20,00,000	32,00,000
Less: Indirect selling and Distribution cost	15,60,000	15,12,000
Profit	<u>4,40,000</u>	<u>16,88,000</u>
Profitability as percentage of sales	8.8 %	21.1 %

$$(\text{₹}4,40,000/\text{₹}50,00,000) \times 100 \quad (\text{₹}16,88,000/\text{₹}80,00,000) \times 100$$

**Q 8.** XYZ Ltd. manufactures two products A and B. The manufacturing division consists of two production department P<sub>1</sub> and P<sub>2</sub> and two service departments S<sub>1</sub> and S<sub>2</sub>. Budgeted overhead rates are used in the production departments to absorb factory overhead to the products. The rate of department P<sub>1</sub> is based on direct machine hours, while the rate of department P<sub>2</sub> is based on direct labour hours. In applying overheads, the predetermined rates are multiplied by actual hours. For allocating the service department costs to production departments, the basis adopted is as follows:

- (i) Cost of department S<sub>1</sub> to department P<sub>1</sub> and P<sub>2</sub> equal and
- (ii) Cost of department S<sub>2</sub> to department P<sub>1</sub> and P<sub>2</sub> in the ratio of 2:1 respectively.

Annual profit plan data:

Factory Overheads budgeted for the year:

Departments	P <sub>1</sub>	P <sub>2</sub>	S <sub>1</sub>	S <sub>2</sub>
Amount (₹)	27,85,000	22,55,000	7,50,000	5,10,000

Budgeted output of product A and B are 50,000 units and 30,000 units respectively. Budgeted raw material cost per unit for product A and B are ₹120 and ₹150 respectively. Budgeted time required for production per unit:

	Product A	Product B
Department P <sub>1</sub>	1.5 machine hours	1.0 machine hours
Department P <sub>2</sub>	2 direct labour hours	2.5 direct labour hours

Average wage rates budgeted in Department P<sub>2</sub> are: Product A - ₹ 72 per hour and Product B - ₹ 75 per hour.

All materials are used in Department P<sub>1</sub> only.

Actual data (for the month of July 2017)

Units actually produced:

Product A    4,000 units

Product B    3,000 units

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Actual direct machine hours worked in Department P<sub>1</sub>:

On Product A - 6,100 hours, Product B - 4,150 hours.

Actual direct labour hours worked in Department P<sub>2</sub>:

On Product A - 8,200 hours, Product B - 7,400 hours.

Costs actually incurred:

	Product A	Product B
Raw Materials	5,10,000	4,80,000
Wages	5,80,000	5,50,000

Factory Overheads:

Departments	P <sub>1</sub>	P <sub>2</sub>	S <sub>1</sub>	S <sub>2</sub>
Amount (₹)	2,81,000	2,25,000	72,000	51,000

You are required to:

- (i) Compute the predetermined overhead rate for each production department.
- (ii) Prepare a Statement showing Budgeted and Actual costs for the month of July, 2017.

**Answer:8**

- (i) Computation of predetermined overhead rate for each production department for budgeted data

Particulars	Production Departments		Service Departments	
	P <sub>1</sub> (₹)	P <sub>2</sub> (₹)	S <sub>1</sub> (₹)	S <sub>2</sub> (₹)
Budgeted overhead for the year	27,85,000	22,55,000	7,50,000	5,10,000
Allocation of Service department S <sub>1</sub> 's cost to Production Dept. P <sub>1</sub> and P <sub>2</sub> equally	3,75,000	3,75,000	(7,50,000)	—
Allocation of Service department S <sub>2</sub> 's cost to Production Dept. P <sub>1</sub> and P <sub>2</sub> in the ratio of 2:1	3,40,000	1,70,000		(5,10,000)
Total	35,00,000	28,00,000	Nil	Nil
Budgeted Machine hours in department P <sub>1</sub> (working note 1)	1,05,000			
Budgeted Direct labour hours in department P <sub>2</sub> (working note 1)		1,75,000		
Budgeted Machine/ Direct labour hour rate	₹33.33	₹16		

- (ii) Statement showing Budgeted and Actual Costs for the month of July 2017.

	Budgeted (₹)	Actual (₹)
Raw Materials used in Department P <sub>1</sub>		
A (4,000 units x ₹120)	4,80,000	5,10,000
B (3,000 units x ₹150)	4,50,000	4,80,000
Direct Labour Cost on the basis of labour hours worked in department P <sub>2</sub>		
A (4,000 x 2 hrs x ₹ 72)	5,76,000	5,80,000
B (3,000 x 2.5 hrs x ₹75)	5,62,500	5,50,000
Factory Overheads:		
On machine hour basis in Department P <sub>1</sub>		
A(4,000 x1.5 hrs x ₹33.33)	1,99,980	2,08,888*

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B (3,000 x 1 hr x ₹33.33)	99,990	1,42,112*
On Direct labour hour basis in Department P <sub>2</sub>		
A(4,000 x 2 hrs x ₹16)	1,28,000	1,46,128*
B (3,000 x 2.5 hrs x ₹16)	1,20,000	1,31,872*
	26,16,470	27,49,000

\*Refer Working Note - 3

Working Notes:

		Product A	Product B	Total
1.	Budgeted output (in units)	50,000	30,000	
	Budgeted Machine hours in Department P <sub>1</sub>	75,000 hrs (50,000x1.5 hrs)	30,000 hrs (30,000 x 1 hr)	1,05,000 hrs
	Budgeted Direct labour hour in Department P <sub>2</sub>	1,00,000 hrs (50,000 x 2 hrs)	75,000 hrs (30,000 x 2.5 hrs)	1,75,000 hrs
2.	Actual output (units)	4,000	3,000	
	Actual Machine hours utilized in Department P <sub>1</sub>	6,100	4,150	10,250
	Actual Direct labour hours utilized in Department P <sub>2</sub>	8,200	7,400	15,600

Working Notes: 3

Computation of actual overhead rates for each production department from actual data

Particulars	Production Departments		Service Departments	
	P <sub>1</sub> (₹)	P <sub>2</sub> (₹)	S <sub>1</sub> (₹)	S <sub>2</sub> (₹)
Actual factory overhead for July 2017.	2,81,000	2,25,000	72,000	51,000
Allocation of Service department S <sub>1</sub> 's cost to Production Dept. P <sub>1</sub> and P <sub>2</sub> equally	36,000	36,000	(72,000)	--
Allocation of Service department S <sub>2</sub> 's cost to Production Dept. P <sub>1</sub> and P <sub>2</sub> in the ratio of 2:1	34,000	17,000	--	(51,000)
Total	3,51,000	2,78,000	Nil	Nil
Actual Machine hours in department P <sub>1</sub> (Working note 2)	10,250			
Actual Direct labour hours in department P <sub>2</sub> (Working note 2)		15,600		
Machine hour rate (₹3,51,000 / 10,250)	₹ 34.2439			
Direct Labour hour rate (₹2,78,000 / 15,600)		₹ 17.8205		
Product A	2,08,888 (₹ 34.2439 x 6,100)	1,46,128 (₹17.8205 x 8,200)		
Product B	1,42,112 (₹34.2439x 4,150)	1,31,872 (₹17.8205 x 7,400)		
Total	3,51,000	2,78,000		

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- Q 9. (a) Explain the objectives and functions of the Cost Accounting Standards Board.
- (b) What is the basic rules and basis for cost classification as per CAS-1?

**Answer 9(a):**

The objectives of the CASB are to develop high quality Cost Accounting Standards to enable the management to take informed decisions and to enable regulators to function more effectively by integrating, harmonizing and standardizing Cost Accounting Principles and Practices.

The following will be the functions of the CASB :-

- (a) To issue the framework for the Cost Accounting Standards.
- (b) To equip the Cost & Management Accounting professionals with better guide lines on cost Accounting Principles.
- (c) To assists the members in preparation of uniform cost statements under various statutes.
- (d) To provide from time to time interpretations on Cost Accounting Standards.
- (e) To issue application guidance relating to particular standard.
- (f) To propagate the Cost Accounting Standards and to persuade the users to adopt them in the preparation and presentation of general purpose Cost Statement.
- (g) To persuade the government and appropriate authorities to enforce Cost Accounting Standards, to facilitate the adoption thereof, by industry and corporate entities in order to achieve the desired objectives of standardization of Cost Accounting Practices.
- (h) To educate the users about the utility and the need for compliance of Cost Accounting Standards.

**Answer 9(b):**

## **Basic Rules for Classification of Costs**

- (a) Classification of cost is the arrangement of items of costs in logical groups having regard to their nature (subjective classification) or purpose (objective classification).
- (b) Items should be classified by one characteristic for a specific purpose without ambiguity.
- (c) Scheme of classification should be such that every item of cost can be classified.

## **Basis of classification**

- (a) Nature of expense
- (b) Relation to object – traceability
- (c) Functions / activities
- (d) Behaviour - Fixed, Semi-variable or Variable
- (e) Management decision making
- (f) Production Process
- (g) Time period

# Revisionary Test Paper\_June2018

**Cost Statements/ Reconciliation/Integration/Items excluded from cost and normal and abnormal items**

Q 10. SPR Ltd. provides you the following figures for the year 2016-17:

Particulars	₹
Direct Material	3,20,000
Direct Wages	8,00,000
Production Overheads (25% variable)	4,80,000
Administration Overheads (75% Fixed)	1,60,000
Selling and Distribution Overheads (2/3rd Fixed)	2,40,000
Sales @ ₹ 125 per unit	25,00,000

For the year 2017-18, it is estimated that:

1. Output and sales quantity will increase by 25% by incurring additional Advertisement Expenses of ₹ 60,000.
2. Material prices will go up 10%.
3. Wage Rate will go up by 6% along with, increase in overall direct labour efficiency by 12%.
4. Variable Overheads will increase by 6%.
5. Fixed Production Overheads will increase by 20 %

Required:

- (a) Calculate the Cost of Sales for the year 2016-2017 and 2017-2018.
  - (b) Find out the new selling price for the year 2017-2018.
- (i) If the same amount of profit is to be earned as in 2016-2017.
  - (ii) If the same percentage of profit to sales is to be earned as in 2016-2017.
  - (iii) If the existing percentage of profit to sales is to be increased by 25%.
  - (iv) If Profit per unit ₹10 is to be earned.

**Answer 10:**

(a) Statement showing the Cost of Sales

₹

Particulars		For 20000 units	For 25000 units
A.	Direct Materials	3,20,000	4,40,000 [₹3,20,000 x 110% x 125%]
B.	Direct wages	8,00,000	9,46,429 [₹ 8,00,000 x (106/100) x (100/112) x 125%]
C.	Prime Cost	11,20,000	13,86,429
D.	Add: Production Overheads	1,20,000	1,59,000
	Variable Production Overheads	[₹ 4,80,000 x 25%]	[₹1,20,000 x 106% x 125%]
	Fixed Production Overheads	3,60,000 [₹ 4,80,000 x 75%]	4,32,000 [₹ 3,60,000 x 120%]
E.	Works Cost (C + D)	16,00,000	19,77,429
F.	Add: Administration Overheads	40,000	53,000
	Variable Admn. Overheads	[1,60,000 x (1/4)]	[₹ 40,000 x 106% x 125%]
	Fixed Admn. Overheads	1,20,000 [1,60,000 x (3/4)]	1,20,000



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	3,75,000		3,75,000
To, Office Expenses	61,800	By, Gross Profit	1,70,040
To, Net Profit	1,08,240	b/d	
	1,70,040		1,70,040

## Statement of Reconciliation

Particulars	Amount ₹
Profit as per Financial Accounts	1,08,240
(-) Over recovery of works overheads	(240)
(+) Under recovery of office expenses	240
Profit as per Cost Accounts	1,08,240

## Job Costing

Q 12. Intro Limited undertakes to supply 1,000 units of a component per month for the months of January, February and March 2017. Every month a batch order is opened against which materials and labour cost are booked at actuals. Overheads are levied at a rate per labour hour. The selling price is contracted at ₹ 15 per unit.

From the following data, present the cost and profit per unit of each batch order and the overall position of the order for the 3000 units:

Month	Batch Output (Numbers)	Material Cost	Labour Cost	Overheads	Total Labour Hours
January 2017	1,250	₹ 6,250	₹ 2,500	₹ 12,000	4,000
February 2017	1,500	9,000	3,000	9,000	4,500
March 2017	1,000	5,000	2,000	5,000	5,000

Labour is paid at the rate of ₹ 2 per hour.

Answer 12.

Statement showing the Cost and Profit per unit for each batch.

	Jan.	Feb.	March	Total
(i) Batch output (numbers)	1,250	1,500	1,000	3,750
(ii) Total sales realisation from (i) above @ ₹15	₹18,750	₹ 22,500	₹15,000	₹56,250
(iii) Costs				
Material	6,250	9,000	5,000	20,250
Labour	2,500	3,000	2,000	7,500
Overheads (see working note)	3,750	3,000	3,000	9,750
Total Cost	12,500	15,000	10,000	37,500
(iv) Profit (i) - (iii)	6,250	7,500	5,000	18,750
(v) Profit per unit (iv ÷ i)	5	5	5	
(vi) Cost per unit (iii ÷ i)	10	10	10	

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## Profitability for 3,000 units

Sales value	(3,000 x ₹ 15)	₹ 45,000
Less: Costs	(3,000 x ₹ 10)	₹ 30,000
Profit		₹ 15,000

Working Notes:

The batch labour cost for the month is given. The labour is paid @ ₹2 per hour. Thus, by dividing the batch labour cost with hourly rate, batch labour hours can be found out:

(a) Batch labour hours	$\frac{₹ 2,500}{2}$	$\frac{3,000}{2}$	$\frac{2,000}{2}$
	= 1250 hrs.	= 1500 hrs.	= 1000 hrs.
 (b) Overhead per hour (Total overheads of Total labour hours)	$\frac{12000}{4000}$	$\frac{9000}{4500}$	$\frac{15000}{5000}$
	₹ 3	₹ 2	₹ 3
 Overhead for the batch (a x b)	or ₹ 3,750	₹ 3,000	₹ 3,000

## Process Costing

**Q13.** PSL Ltd. produces a product "ABU", which passes through two processes, viz., process I and process II. The output of each process is treated as the raw material of the next process to which it is transferred and output of the second process is transferred to finished stock. The following data related to December, 2017:

	Process I	Process II
25,000 units introduced at a cost of	₹2,00,000	—
Material consumed	₹1,92,000	₹96,020
Direct labour	₹2,24,000	₹1,28,000
Manufacturing expenses	₹1,40,000	₹60,000
Normal wastage of input	10%	10%
Scrap value of normal wastage (per unit)	₹10.00	₹9.00
Output in Units	22,000	20,000

**Required:**

- (i) Prepare Process I and Process II account.
- (ii) Prepare Abnormal effective/wastage account as the case may be each process.

**Answer 13.**

### Process I Account

Particulars	Units	Amount (in ₹)	Particulars	Units	Amount (in ₹)
To Input	25,000	2,00,000	By Normal wastage	2,500	25,000
To Material		1,92,000	By Abnormal wastage	500	16,244
To Direct Labour		2,24,000	By Process II	22,000	7,14,756
To Manufacturing Exp.		1,40,000			
<b>Total</b>	<b>25,000</b>	<b>7,56,000</b>	<b>Total</b>	<b>25,000</b>	<b>7,56,000</b>

Cost per unit =  $(7,56,000 - 25,000) / (25,000 - 2,500) = ₹32.48889$  per unit

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## Process II Account

Particulars	Units	Amount (in ₹)	Particulars	Units	Amount (in ₹)
To Process I	22,000	7,14,756	By Normal wastage	2,200	18,920
To Material		96,020	By Finished stock	20,000	9,89,754
To Direct Labour		1,28,000			
To Manufacturing Exp.		60,000			
To Abnormal effect	200	9898			
<b>Total</b>	<b>22,200</b>	<b>10,08,674</b>	<b>Total</b>	<b>22,200</b>	<b>10,08,674</b>

Cost per unit = (9,98,776 - 18,920) / (22,000 - 2,200) = ₹49.4877 per unit

## Abnormal Wastage Account

Particulars	Units	Amount (in ₹)	Particulars	Units	Amount (in ₹)
To Process I A/c	500	16,244	By Cash (Sales)	500	5,000
			By Costing Profit and Loss A/c		11,244
<b>Total</b>	<b>500</b>	<b>16,244</b>	<b>Total</b>	<b>500</b>	<b>16,244</b>

## Abnormal Effectives Account

Particulars	Units	Amount (in ₹)	Particulars	Units	Amount (in ₹)
To Normal wastage	200	1800	By Process II A/c	200	9,898
To Costing Profit and Loss A/c		8,098			
<b>Total</b>	<b>200</b>	<b>9,898</b>	<b>Total</b>	<b>200</b>	<b>9,898</b>

**Q14. Following information is available regarding Process A for the month of December 2017:**

**Production Record:**

(i) Opening work-in progress	40,000 Units
(Material: 100% complete, 25% complete for labour and overheads)	
(ii) Units Introduced	1,80,000 Units
(iii) Units Completed	1,50,000 Units
(iv) Units in-process on 31.12.2017	70,000 Units
(Material: 100% complete, 50% complete for labour and overheads)	

**Cost Record:**

**Opening Work-in-progress:**

Material	₹1,00,000
Labour	₹25,000
Overheads	₹45,000

**Cost incurred during the month:**

Material	₹7,20,000
Labour	₹6,00,000
Overheads	₹8,00,000

Assume that FIFO method is used for W.I.P. inventory valuation.

**Required:**

- (i) Statement of Equivalent Production (ii) Statement showing Cost for each element (iii) Statement of apportionment of Cost (iv) Process Account

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**Answer 14:**

Statement of Equivalent Production (FIFO Method)

Particulars				Equivalent Production			
				Material		Labour and Overhead	
Input	Units	Output	Units	% of completion	Qty	% of completion	Qty
Opening WIP	40,000	Transfer to Process II					
Introduced	1,80,000	Opening WIP Completed	40,000	—	—	75	30,000
		Introduced and Completed	1,10,000	100	1,10,000	100	1,10,000
		Closing WIP	70,000	100	70,000	50	35,000
<b>Total</b>	<b>2,20,000</b>		<b>2,20,000</b>		<b>1,80,000</b>		<b>1,75,000</b>

Statement showing Cost for each element

Item of Cost	Equivalent Production	Cost Incurred	Cost per Unit
Material	1,80,000	7,20,000	4
Labour & Overheads	1,75,000	14,00,000	8
<b>Total</b>			<b>12</b>

Statement of Evaluation

Transfer to Process II		
Opening WIP Completed:		
Cost already Incurred	1,70,000	
Cost Incurred during the Month:		
Labour & Overheads (30,000 x 8)	<u>2,40,000</u>	4,10,000
Introduced & Completed (1,10,000 x 12)		<u>13,20,000</u>
		<u>17,30,000</u>
Closing WIP		
Material 70,000 x 4	2,80,000	
Labour and Overheads 35,000 x 8	<u>2,80,000</u>	5,60,000

Process A/c

	Units	Amount		Units	Amount
To Opening WIP	40,000	1,70,000	By Process II A/c	1,50,000	17,30,000
To Materials	1,80,000	7,20,000	By Closing WIP	70,000	5,60,000
To Labour		6,00,000			
To Overheads		8,00,000			
<b>Total</b>	<b>2,20,000</b>	<b>23,10,000</b>	<b>Total</b>	<b>2,20,000</b>	<b>22,90,000</b>

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Q 15

Leo Limited produces a product which passes through two processes before it is completed and transferred to finished stock. The following data relate to September, 2017:

Particulars	Process		Finished Stock
	I	II	
Opening Stock	₹ 3,000	Rs. 3,600	₹ 9,000
Direct Materials	6,000	6,300	
Direct Wages	4,480	4,500	
Factory Overheads	4,200	1,800	
Closing Stock	1,480	1,800	4,500
Inter-process profit included in Opening Stock		600	3,300

Output of Process I is transferred to Process II at 25% profit on the transfer price and output of Process II is transferred to finished stock at 20% profit on the transfer price.

Stocks in process are valued at prime cost. Finished stock is valued at the price at which it is received from Process II. Sales during the period were ₹ 56,000.

Prepare Process Cost Accounts and Finished Stock Account showing the profit element at each stage.

Answer 15:

Process I Account

	Total	Cost	Profit		Total	Cost	Profit
Opening stock	3,000	3,000		Transfer to Process II A/c	21,600	16,200	5,400
Direct material	6,000	6,000					
Direct wages	4,480	4,480					
<b>Total</b>	<b>13,480</b>	<b>13,480</b>					
Less: C/stock	1,480	1,480					
Prime cost	12,000	12,000					
Fy. overheads	4,200	4,200					
Process cost	16,200	16,200					
Profit 33-1/3 on cost	5,400		5,400				
(Working Note 1)	<b>21,600</b>	<b>16,200</b>	<b>5,400</b>				

Process II Account

	Total ₹	Cost ₹	Profit ₹		Total ₹	Cost ₹	Profit ₹
Opening stock Trnfr. from Process I	3,600	3,000	600	Trfd. to Finished Stock A/c	45,000	30,300	14,700
Direct materials	6,300	6,300					
Direct wages	4,500	4,500					
<b>Total</b>	<b>36,000</b>	<b>30,000</b>	<b>6,000</b>				
Less: C/stock	1,800	1,500	300*				
Prime cost	34,200	28,500	5,700				
Fy. overhead	1,800	1,800					
Process cost	36,000	30,300	5,700				
Profit (25% on cost)	9,000		9,000				
(Working Note 2)	<b>45,000</b>	<b>30,300</b>	<b>14,700</b>				

\* (Profit/ Total Cost) x Closing stock = (6,000/36000) x ₹ 1,800 = ₹300

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## Finished Stock Account

	Total ₹	Cost ₹	Profit ₹		Total ₹	Cost ₹	Profit ₹
Opening Stock	9,000	5,700	3,300	Sales	56,000	33,000	23,000
Trnfr. from Process II	45,000	30,300	14,700				
	54,000	36,000	18,000				
Less: Closing stock	4,500	3,000	1,500 @				
Cost of F. Stock	49,500	33,000	16,500				
Profit	6,500	-	6,500				
	56,000	33,000	23,000		56,000	33,000	23,000

@ (18,000/54,000) x ₹ 4,500 = ₹ 1,500

Working Notes:

- 25% profit on transfer price is equal to 33-1/3% on cost. Suppose transfer price is ₹100 and profits ₹ 25. Thus cost will be ₹75. ₹ 25 as a ratio of ₹ 75 is one-third = ₹16,200 ÷ 3 = ₹ 5,400.
- 20% profit on transfer price is equal to 25% on cost. Suppose transfer price is ₹ 100 and profit is ₹20. Thus cost will be ₹ 80. ₹ 20 as a ratio of ₹ 80 is one fourth = ₹ 36,000 ÷ 4 = ₹ 9,000.

### Joint Product and By-Product

**Q16.** ABC company's plant processes 1,50,000 kg. of raw material in a month to produce two products, viz. P and Q. The cost of raw material is Rs. 12 per kg.

The process costs per month are:

Direct Materials	Rs. 90,000
Direct Wages	1,20,000
Variable Overheads	1,00,000
Fixed Overheads	1,00,000

The loss in process is 5% of input and the output ratio of P and Q which emerge simultaneously is 1:2. The selling prices of the two products at the point of split off are: P — Rs. 12 per kg. and Q — Rs. 20 per kg. A proposal is available to P further by mixing it with other purchased materials. The entire current output of the plant can be so processed further to obtain a new product 'S'. The price per kg. of 'S' is Rs. 15 and each kg. of output of S will require one kilogram of input P. The cost of processing of P into S (including other materials) is Rs. 1,85,000 per month.

You are required to prepare a statement showing the monthly profitability based both on the existing manufacturing operations and on further processing. Will you recommend further processing?

**Answer 16: Working Notes:**

- Material output (1,50,000 kg less 5% of 150,000 kg) 1,42,500 kg
- Output of products P and Q  
 P = 1,42,500 × 1/3 = 47,500 kg  
 Q = 1,42,500 × 2/3 = 95,000 kg
- Joint costs:  
 Raw materials (1,50,000 × Rs. 12) Rs. 18,00,000  
 Direct materials 90,000  
 Direct labour 1,20,000  
 Variable overheads 1,00,000  
 Fixed overheads 1,00,000  
22,10,000

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4. Sales revenue of products P, Q and S:

P = 47,500 kg × Rs. 12	Rs. 5,70,000
Q = 95,000 kg × Rs. 20 =	19,00,000
S = 47,500 kg × Rs. 15 =	7,12,500

5. Joint costs apportionment to products P and Q (Sales value basis):

Particulars	P	Q	Total
Joint Costs (57,000: 19,00,000 or 3: 10)	5,10,000	17,00,000	22,10,000
Total Cost of S = Joint cost of product P + Further processing costs)			
	= Rs. 5,10,000 + Rs. 1,85,000 = Rs. 6,95,000		

### Statement showing the monthly profitability with and without further processing:

Products	Without further Processing			Further Processing P into S		
	P	Q	Total	S	Q	Total
Sales volume (kg)	47,500	95,000	1,42,500	47,500	95,000	1,42,000
Sales value (Note 4) (Rs.)	5,70,000	19,00,000	24,70,000	7,12,500	19,00,000	26,12,500
Less: Joint cost (Note 5)	5,10,000	17,00,000	22,10,000	6,95,000	17,00,000	23,95,000
Profit	60,000	2,00,000	2,60,000	17,500	2,00,000	2,17,500

Total profit without processing is Rs. 2,60,000 and with further processing is Rs. 2,17,500. Further process is, therefore, not recommended.

## Operating Costing

**Q17. The following information relates to a bus operator:**

Cost of the bus	₹ 18,00,000
Insurance charges	3%p.a.
Manager- cum accountant's salary	₹ 8,000 p.m.
Annual Tax	₹ 50,000
Garage Rent	₹ 2,500 p.m.
Annual repair & maintenance	₹ 1,50,000
Expected life of the bus	15 years
Scrap value at the end of 15 years	₹ 1,20,000
Driver's salary	₹ 15,000 P.m.
Conductor's salary	₹ 12,000p.m.
Stationery	₹ 500 p.m.
Engine oil, lubricants (for 1200 kms.)	₹ 2,500
Diesel and oil (for 10 kms.)	₹ 52
Commission to driver and conductor (shared equally)	10% of collections
Route distance	20 km long

The bus will make 3 round trips for carrying on the average 50 passengers in each trip. Assume 15% profit on collections. The bus will work on the average 25 days in a month. Calculate fare for passenger-km.

**Q17. Answer: Working Notes**

(i) Calculation of Depreciation of Bus (Per month)

= (Cost of the bus - Scrap value at the end of the 15 years) / Expected life of the bus

= (18,00,000 - 1,20,000) / 15 years

= ₹1,12,000 p.a.

Depreciation per month = (1,12,000 / 12 months) = 9,333.33

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- (ii) Calculation of total distance travelled and Passenger-km. per month  
 Total distance = 3 trips x 2 x 20 k.m. x 25 days = 3,000 k.m.  
 Total Passenger-km. = 3 trips x 2 x 20 k.m. x 25 days x 50 passengers  
 = 1,50,000 Passenger-k.m.
- (iii) Cost of Engine oil, Lubricants and Diesel & oil (Per month)  
 = (Total distance Travelled/ 1200 km) x 2,500  
 = (3,000 km/1200 km) x 2500 km. = ₹6,250.
- Diesel and Oil = (Total distance Travelled/ 10 km) x 52 = (3,000/10) x 52 = ₹15,600

### Statement showing the Operating Cost per Passenger-km

	₹	₹
(i) Standing Charges:		
Depreciation {Working Note- (i)}	9,333.33	
Insurance charge (18,00,000 x 3 %)/12	4,500	
Manager cum Accountant's salary	8,000	
Annual Tax P.m. (50,000/12)	4,166.67	
Garage rent	2,500	28,500
(ii) Maintenance Charges:		
Repair & Maintenance per month (150000/12)		12,500
(iii) Running Cost:		
Driver's Salary	15,000	
Conductor's Salary	12,000	
Stationery	500	
Engine oil & Lubricants {Working Note- (iii)}	6,250	
Diesel and oil {Working Note- (iii)}	15,600	
Total running cost before deducting commission to driver and conductor	49,350	49,350
(a) Total cost excluding commission to driver and conductor		90,350
(b) Driver's commission on collection*		6,023.34
(c) Conductor's commission on collection*		6,023.33
Total Cost (a) +(b) + (c)		1,02,396.67
Add: Profit**		18,070
Total Collection		1,20,466.67

*Working note*

Total costs before commission on collection and net profit is ₹90,350.

Commission on collection to driver and conductor is 10% of collection and Profit is 15% of collection means

100% - (10% + 15%) i.e. 75% = ₹90,350

So, Total collection = (90350/75) x 100 = 1,20,466.67

\* Total Commission on collection = 10% x ₹ 1,20,466.67 = ₹12,046.67

Driver's share = 50% x ₹ 12,046.67 = 6,023.34

Conductor's share = 50% x ₹ 12,046.67 = 6,023.33

\*\* Profit on collection = ₹ 1,20,466.67 x 15% = ₹ 18,070

Fare per Passenger-km. = Total contribution/Total Passenger-k.m {working Notes (ii)}  
 = 1,20,466.67 / 1,50,000 = ₹ 0.8031 (approx.)

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Q18. Elora Hotel has a capacity of 100 single rooms and 20 double rooms. It has a sports centre with a swimming pool, which is also used by persons other than residents of the hotel. The hotel has a shopping arcade at the basement and a speciality restaurant at the roof top.

The following information is available:

- (i) Average occupancy: 75% for 365 days of the year.  
 (ii) Current costs are :

	Variable cost ₹/per day	Fixed cost ₹/per day
Single Room	400	200
Double Room	500	250

- (iii) Average sales per day of restaurant ₹ 1,00,000; contribution is at 30%. Fixed cost ₹ 10,00,000.  
 (iv) The sports centre/swimming pool is likely to be used by 50 non-residents daily; average contribution per day per non-resident is estimated at ₹ 50; fixed cost is ₹ 5,00,000 per annum.  
 (v) Average contribution per month from the shopping arcade is ₹ 50,000; fixed cost is ₹ 6,00,000 per annum.

You are required to find out:

- (a) Rent chargeable for single and double room per day, so that there is a margin of safety of 20% on hire of rooms and that the rent for a double room should be kept at 120% of a single room.  
 (b) Evaluate the profitability of restaurant, sports centre and shopping arcade separately.

**Answer 18:**

Working Notes:

1. Single room occupancy days in a year : 100 rooms x 365 days x 75% = 27,375 days
2. Double room occupancy days in a year : 20 rooms x 365 days x 75% = 5,475 days
3. Total rooms occupancy days in terms of single room : = 27,375 + 1.20 (5,475)  
 = 33,945 days

(a) Statement showing the rent chargeable for single and double room per day

Type of room	Occupancy days in a year	Variable cost per day ₹ /day	Fixed cost ₹/day	Total variable cost (₹)	Total Fixed cost (₹)	Total Cost
Single room	27,375	400	200	1,09,50,000	54,75,000	1,64,25,000
Double room	5,475	500	250	27,37,500	13,68,750	41,06,250
Add margin of safety*						2,05,31,250
						51,32,812
Total amount to be recovered						2,56,64,062

\*20% of hire charges of room or 25% of cost.

Rent per day of single room (in ₹) = ₹ 2,56,64,062 ÷ 33,945 = ₹ 756 Approx.

Rent per day of double room (in ₹) = ₹ 756 x 1.2 times = ₹ 907 Approx.

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**(b) Profitability of restaurant**

Total sales per annum : 365 day x ₹ 1,00,000 =	₹ <u>3,65,00,000</u>
Contribution per annum (A) (30% of sales)	1,09,50,000
Less : Fixed cost (S)	<u>10,00,000</u>
Profit [(A) - (B)]	<u>99,50,000</u>

**Profitability of Sports Centre:**

Contribution of sports centre per day (50 persons x ₹ 50)	<u>2,500</u>
Total contribution for the year (₹ 2,500 x 365 days)	₹ 9,12,500
Less : Fixed cost	<u>5,00,000</u>
	<u>4,12,500</u>

**Profitability of shopping arcade**

Contribution per annum (₹ 50,000 x 12 months)	₹ 6,00,000
Less : Fixed cost	<u>6,00,000</u>
Profit	Nil

## Contract Costing

**Q19. Compute a conservative estimate of profit on a contract (which has been 80% complete) from the following particulars. Illustrate at least 4 methods of computing the profit:**

	₹
<b>Total expenditure to date</b>	<b>85,000</b>
<b>Estimated further expenditure to complete the contract (including contingencies)</b>	<b>17,000</b>
<b>Contract Price</b>	<b>1,53,000</b>
<b>Works certified</b>	<b>1,00,000</b>
<b>Works not certified</b>	<b>8,500</b>
<b>Cash received</b>	<b>81,600</b>

**Answer 19:**

Value of work certified	₹ 1,00,000
Work not certified	<u>8,500</u>
Total work done so far	1,08,500
Less: Total expenditure up to date	<u>85,000</u>
Notional Profit	<u>23,500</u>
Contract Price	₹ 1,53,000
Less: Expenditure up to date	₹ 85,000
Estimated further expenditure to complete contract	<u>17,000</u> <u>1,02,000</u>
Estimated total profit	<u>51,000</u>

Four methods of Computing Profit:

1.  $(2/3) \times \text{Notional Profit} \times (\text{Cash received}/\text{work certified})$   
 $= 2/3 \times ₹ 23,500 \times (₹ 81,600/₹ 1,00,000)$   
 $= ₹ 12,784$
2.  $\text{Notional Profit} \times (\text{Work certified}/\text{Contract price})$   
 $= 23,500 \times (₹ 1,00,000/₹ 1,53,000)$   
 $= ₹ 15,359$

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3. Estimated Total Profit x (Value of work certified/contract Price) x (Cash Received/ Value of work certified)  
 = ₹ 51,000 x (₹ 1,00,000/₹ 1,53,000) x (₹81,600/₹ 1,00,000) = ₹ 27,200
4. Estimated total profits x (Cost of work to date/ Estimated total cost) x (Cash received/ Value of work certified)  
 = ₹ 51,000 x (₹85,000/₹ 1,02,000) x (₹ 81,600/₹ 1,00,000) = ₹ 34,680

**Q20. Act Infrastructure Limited undertook a contract for ₹ 5,00,000 on 1st July 2016. On 30th June 2017, when the accounts were closed, the following details about the contract were gathered:**

Materials purchased	₹ 1,00,000
Wages paid	45,000
General Expenses	10,000
Plant Purchased	50,000
Materials on hand 30-6-17	25,000
Wages Accrued 30-6-17	5,000
Work Certified	2,00,000
Cash Received	1,50,000
Work Uncertified	15,000
Depreciation of Plant	5,000

The above contract contained an escalation clause which read as follows:

"In the event of prices of materials and rates of wages increase by more than 5% the contract price would be increased accordingly by 25% of the rise in the cost of materials and wages beyond 5% in each case." It was found that since the date of signing the agreement the prices of materials and wage rates increased by 25%. The value of the work certified does not take into account the effect of the above clause.

Prepare the contract account.

**Answer 20:**

Contract Account of Act Infrastructure Limited  
(For the year ending 30th June 2017)

	₹		₹
To Materials	₹ 1,00,000	Work in progress A/c:	
" Wages Paid      45,000		Work certified	2,00,000
" Wages Accrued <u>5,000</u>	50,000	Work uncertified	15,000
" General Expenses	10,000	Materials in hand	25,000
" Plant Depreciator		Contract escalation	5,000
" Balance c/d	5,000	(Note 1)	
(Notional profit)	<u>80,000</u>		
	<u>2,45,000</u>		<u>2,45,000</u>
" P & L A/c (Note 2)	20,000	By Balance b/d	80,000
" Work in progress	60,000		
	<u>80,000</u>		<u>80,000</u>

Note 1: Calculation of escalation

Material and Wages increased by 25%

(a) Increase in material price

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$$(\text{₹ } 1,00,000 - \text{₹ } 25,000) \times (25/125) = \text{₹ } 15,000$$

(b) Increase in wages

$$\text{₹ } 50,000 \times (25/125) = \underline{10,000}$$

$$\text{Total increase} \quad \underline{25,000}$$

It is 5% of contract price

Escalation is 25% of the rise in the cost of material and wage beyond 5% in each case.

25% increase = ₹ 25,000

∴ 5% increase = 5,000

Escalation = 25% of (₹ 25,000 - ₹ 5,000) = ₹ 5,000

Note 2: Profit to be credited to P & L A/c

Profit =  $(1/3) \times (\text{Cash received} / \text{Work certified}) \times \text{Notional profit}$

$$= (1/3) \times (1,50,000 / 2,00,000) \times 80,000 = \text{₹ } 20,000$$

Since contract completion is less than 50%, only 1/3rd profit as restricted by ratio of cash received to work certified is transferred to P & L A/c.

## Marginal Costing

Q21 (a). Xpro Ltd sold 3,00,000 units of its product at ₹40 per unit. Variable costs are ₹20 per unit [manufacturing costs of ₹14 and selling cost ₹6 per unit]. Fixed costs are incurred uniformly throughout the year and amount to ₹35,00,000 (including depreciation of ₹15,00,000). There are no beginning or ending inventories.

Required:

- Estimate break-even sales level quantity and cash break-even sales level quantity.
- Estimate the P/V ratio.
- Estimate the number of units that must be sold to earn an income (EBIT) of ₹ 2,50,000.
- Estimate the sales level achieve an after-tax income (PAT) of ₹2,50,000.

Assume 40% corporate Income Tax rate.

Answer 21(a):

(a) Break-even Sales Quantity =  $(\text{FC} / \text{C per unit}) = 35,00,000 / 20 = 1,75,000$  units

Cash-even Sales Quantity =  $(\text{Cash FC} / \text{C per unit}) = 20,00,000 / 20 = 1,00,000$  units

(b) PV Ratio =  $(\text{C} / \text{selling price per unit}) \times 100 = (20/40) \times 100 = 50\%$

(c) No. of units that must be sold to earn an Income(EBIT) of ₹ 2,50,000

$$= (\text{FC} + \text{Desired EBIT Level}) / \text{C per unit} = (35,00,000 + 2,50,000) / 20 = 1,87,500 \text{ units}$$

(d) After Tax Income(PAT) = ₹ 2,50,000

Tax rate = 40%

Desired level of Profit before tax =  $(2,50,000 / 60) \times 100 = \text{₹ } 4,16,667$

Estimate Sales Level =  $(\text{FC} + \text{Desired Profit}) / \text{PV ratio} = (35,00,000 + 4,16,667) / 50\% = \text{₹ } 78,33,334$

Q21 (b). 'XYZ' company sells its product at ₹15 per unit. In a period, if it produces and sells 8,000 units, it incurs a loss of ₹ 5 per unit. If the volume is raised to 20,000 units, it earns a profit of ₹ 4 per unit.

Calculate break-even point both in terms of rupees as well as in units.

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**Answer 21(b):** We know that  $S - V = F + P$

Suppose variable cost =  $x$

Fixed cost =  $y$

In first situation :

$$15 \times 8,000 + 8,000x = y - 40,000 \quad \dots(1)$$

In second situation:

$$15 \times 20,000 + 20,000x = y + 80,000 \quad \dots (2)$$

$$\text{or } 1,20,000 - 8,000x = y - 40,000 \quad \dots (3)$$

$$3,00,000 - 20,000 = y + 80,000 \quad \dots(4)$$

From (3) & (4) we get  $x = ₹ 5$ .

Variable cost per unit = ₹ 5

Putting this value in 3rd equation.

$$1,20,000 - (8,000 \times 5) = y - 40,000$$

$$\text{Or } y = ₹ 1,20,000$$

Fixed cost = ₹ 1,20,000

$$P/V \text{ ratio} = (S-V)/S = \{(15-5)/15\} * 100 = (200/3) = 66\frac{2}{3} \%$$

Suppose break-even sales =  $x$

$$15x - 5x = 1,20,000 \quad (\text{at BEP contribution will be equal to fixed cost})$$

$$x = 12,000 \text{ unit.}$$

or Break-even sales in units = 12,000

Break-even sales in rupees =  $12,000 \times 15 = ₹ 1,80,000$

**Q22.** MCo International is manufacturing and selling two products: X and Y, at selling price of ₹ 3 and ₹ 4 respectively. The following sales strategy has been outlined for the year 2017:

- (i) Sales planned for the year will be ₹ 7.20 lakhs in the case of X and ₹ 3.50 lakhs in the case of Y.
- (ii) To meet competition, the selling price of X will be reduced by 20% and that of Y by 12.5%.
- (iii) Break-even is planned at 60% of the total sales of each product.
- (iv) Profit for the year to be achieved is planned at ₹ 69,120 in the case of X and ₹ 17,500 in the case of Y. This would be possible by launching a cost reduction programme and reducing the present annual fixed expenses of ₹ 1,35,000 allocated as ₹ 1,08,000 to X and ₹ 27,000 to Y.

You are required to present the proposal in financial terms giving clearly the following information:

- (a) Number of units to be sold of X and Y to break-even as well as the total number of units on X and Y to be sold during the year.
- (b) Reduction in fixed expenses product-wise that is envisaged by the Cost Reduction Programme.

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**Answer 22:**

(a) Number of units sold to break-even and total units to be sold during 2017

	Total	X	Y
Planned sales	₹10,70,000	₹ 7,20,000	₹ 3,50,000
Selling price per unit after reduction		2.40	3.50
Total sales (units)	4,00,000	3,00,000	1,00,000
B.E. sales (units) 60% of total sales	2,40,000	1,80,000	60,000

(b) Reduction in fixed expenses product-wise

B.E. sales (60% of planned sales)	₹ 6,42,000	₹4,32,000	₹2,10,000
Margin of safety (40% of planned sales)	4,28,000	2,88,000	1,40,000
Planned profit	86,620	69,120	17,500
P/V Ratio = Profit/M.S.		24%	12.5%
Fixed Cost* at B.E. Sales	1,29,930	1,03,680*	26,250*
Existing in fixed expenses	1,35,000	1,08,000	27,000
Savings in fixed expenses	5,070	4,320	750

\* Product 'X' ₹ 4, 32,000 x 24 % = ₹ 1, 03,680 and Product 'Y' ₹ 2, 10,000 x 12.5 % = ₹ 26,250

**Q23. From the following figures find the break-even volume:**

Selling price per tonne                      ₹ 69.50  
 Variable cost per tonne                      ₹ 35.50  
 Fixed expenses                                      ₹ 18.02 lakhs.

If this volume represents 40% capacity, what is the additional profit for an added production of 40% capacity, the selling price of which is 10% lower for 20% capacity production and 15% lower than the existing price, for the other 20% capacity.

**Answer 23:**

Existing Break-even Sales

BES x PV Ratio = Fixed Cost

BES x ((69.50 - 35.50)/69.50) = ₹ 18.02 lakhs or ₹ 36,83,500 or 53,000 tonnes.

It is given that 53,000 tonnes represent 40% capacity.

∴ 80% will be represented by 1,06,000 tonnes

Any contribution beyond this represents profit

(i) Contribution by 20% capacity for which selling price falls by 10%

Revised Selling Price = ₹ 69.50 - 6.95 = 62.55

Variable Cost                                      35.50

Contribution                                        27.05

20% Capacity = 53,000 tonnes ÷ 2 or 26,500 tonnes

Profit if sale price is ₹ 62.55 = Sales after BES x PV ratio

= (26,500 x 62.55) x (27.05 ÷ 62.55) = ₹ 7,16,825

(ii) Contribution by 20% capacity for which selling price falls by 15%

Revised Selling price = ₹ 69.50 - 10.425 = ₹ 59.075

Variable Cost                                      35.500

Contribution per tonne                        23.575

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Profit if sale price is ₹ 59.075 per tonne  
 = Sale representing 20% capacity x PV Ratio  
 = (26,500 x ₹ 59.075) x (₹ 23.575 ÷ 59.075) = ₹ 6,24,737  
 ∴ Additional profit by 40% Sales= Profit in (i) and (ii)  
 = ₹ 7,16,825 + ₹ 6,24,737 = ₹ 13,41,562

**Q24.** The directors of MNO Ltd., manufacturers of products A, B and C, have asked for advice on the product mix of the company. The following information is given:

Products		A	B	C
<b>Standard cost per unit:</b>				
Direct Material		₹20	₹60	₹40
Variable overhead		6	4	10
<b>Direct labour:</b>				
Department	Rate/Hr.	Hrs.	Hrs.	Hrs.
1	₹1	28	16	30
2	₹2	5	6	10
3	₹1	16	8	30
<b>Current production per annum (units)</b>		10,000	5,000	6,000
<b>Selling price per unit</b>		₹100	₹136	₹180
<b>Forecast of sales for the next year</b>		12,000	7,000	9,000

Fixed overhead per annum ₹ 4,00,000.

Further, the type of labour required by Department 2 is in short supply and it is not possible to increase the manpower of this department beyond its present level.

You are required to prepare a statement showing the most profitable mix of the products to be made and sold. The statement which should be presented in two parts should show:

- (i) the profit expected on the current budgeted production, and
- (ii) the profit which could be expected if the most profitable mix was produced.

**Answer 24:**

- (i) Statement showing the profitability of the current budgeted production

Products	A	B	C	Total
Production (units)	10,000	5,000	6,000	
1. Selling price per unit	₹100	₹136	₹180	
2. Variable cost per unit:				
Direct material	20	60	40	
Variable overhead	6	4	10	
Direct labour :				
Department 1	28	16	30	
Department 2	10	12	20	
Department 3	16	8	30	
Total of 2	80	100	130	
3. Contribution (1 -2)	20	36	50	
4. Total contribution	2,00,000	1,80,000	3,00,000	6,80,000
5. Fixed cost				4,00,000
6. Profit				2,80,000
7. Key factor (Labour times of Dept. 2) - hours	5	6	10	
8. Contribution per hour	₹4	₹6	₹5	
9. Ranking	III	I	II	

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The total production hours available should be utilized in the order of products B, C and A. The total production hours in Department 2 available have been worked out as under:

Product	Production(units)	Labour hours of Dept. 2	Total production hours utilised in Dept. 2
A	10,000	5	50,000
B	5,000	6	30,000
C	6,000	10	60,000
			1,40,000

These available hours can be utilized according to the ranking, i.e., products B, C and A.

Product	Production(units)	Labour hours of Dept. 2	Estimated total production hours utilised
B	7,000	6	42,000
C	9,000	10	90,000
A	1,600	5	8,000 (balance)
			1,40,000

(ii) Statement showing the estimated profitability of most profitable mix

Product	A	B	C	Total
Estimated production (units)	1,600	7,000	9,000	
Contribution per unit as in (i)	₹20	₹36	₹50	
Total contribution (₹)	32,000	2,52,000	4,50,000	7,34,000
Less: Fixed cost (₹)				4,00,000
Profit (₹)				3,34,000

It is noticed that the estimated total contribution has gone up from ₹ 6,50,000 to ₹ 7,34,000.

Q 25.

UNCO Limited makes and sells a range of plastic garden furniture. These items are sold in sets of one table with four chairs for ₹ 80 per set.

The variable costs per set are ₹ 20 for manufacturing and ₹ 10 for variable selling, distribution and administration.

Direct labour is treated as a fixed cost and the total fixed costs of manufacturing, including depreciation of the plastic-moulding machinery, are ₹ 8,00,000 per annum. Budgeted profit for the forthcoming year is ₹ 4,00,000.

Increased competition has resulted in the management of UNCO Limited engaging market research consultants. The consultants have recommended three possible strategies, as follows:

	Reducing selling price per set by (%)	Expected increase in sales (sets)(%)
Strategy 1	5	10
Strategy 2	7.5	20
Strategy 3	10	25

You are required to assess the effect on profits of each of the three strategies, and to recommend which strategy, if any, ought to be adopted.

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Answer 25:

### Statement showing profit from each strategy

	Per Set
Sales	₹ 80
Variable costs (₹ 20+10)	<u>30</u>
Contribution	<u>50</u>
Fixed cost per annum ₹ 8,00,000	

Budgeted production: 24,000 sets (i.e. ₹ 8,00,000 + ₹ 4,00,000 or ₹ 12,00,000 ÷ ₹50)

Strategy	Units	Contribution Total per unit	Total contribution	Fixed cost	Profit
1	26,400*	₹ 46 #	₹ 12,14,400	₹ 8,00,000	₹4,14,400
2	28,800*	44	12,67,200	8,00,000	4,67,200
3	30,000*	42	12,60,000	8,00,000	4,60,000

The second strategy should be implemented as the profit (₹ 4,67,200) is the maximum from this strategy. However, it is assumed that increase in production will not in any way affect the variable cost.

\* 24,000 sets x 1.1 = 26,400; 24,000 sets x 1.2 = 28,800; 24,000 sets x 1.25 = 30,000

	I	II	III
# ₹ 80 - (5% of 80)	76 (Reduced S.P.)	74	72
V.C.	30	30	30
	46	44	42

Q26

A company presently sells an equipment for ₹ 35,000. Increase in prices of labour and material cost are anticipated to the extent of 15% and 10% respectively, in the coming year. Material cost represents 40% of cost of sales and labour cost 30% of cost of sales. The remaining relate to overheads. If the existing selling price is retained, despite the increase in labour and material prices, the company would face a 20% decrease in the existing amount of profit on the equipment.

You are required to arrive at a selling price so as to give the same percentage of profit on increased cost of sales, as before. Prepare a statement of profit/loss per unit, showing the new selling price and cost per unit in support of your answer.

Answer 26:

### Statement showing profits under the revised and existing selling price

	Existing		Revised	
Selling price		₹ 35,000		₹ 37,975
Less : Elements of cost*				
Materials	9,825		10,808	
Labour	7,368		8,473	
Overhead	7,368	24,561	7,368	26,649
Profit		10,439		11,326
Profit on cost of sales		42.5%		42.5%

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\*Working Notes

- (i) (a) Existing material cost = 40% of cost of sales  
Existing labour cost = 30% of cost of sales  
Existing overhead costs = 30% of cost of sales
- (b) Anticipated increase in cost of sales would be as under:  
Material = 10% of existing 40% = 4%  
Labour = 15% of existing 30% = 4.5%  
Overheads remain the same Total increase = 4 + 4.5 = 8.5%

(c) Reduction in profit is anticipated at 20%

(d) Suppose  $x$  = Cost of sales and

$y$  = Profit

$$x + y = ₹35,000$$

(1)

It is given that increase is equal to 20% of profit

$$8.5\% x = 20\% y$$

$$X = (0.20/0.085)y$$

By putting the values in (i) we get

$$(0.20y/0.085y) + y = ₹ 35,000 \text{ or } y = ₹ 10,439$$

Existing profit (i.e. $y$ )	=	₹ 10,439
Existing cost of sales	=	₹ 35,000 - 10,439 = ₹ 24,561
Existing material cost	=	₹ 24,561 x 0.40 = ₹ 9,825
Existing labour cost	=	₹ 24,561 x 0.30 = ₹ 7,368
Existing overhead cost	=	₹ 24,561 x 0.30 = ₹ <u>7,368</u>
		<u>24,561</u>

Percentage of existing profit to cost of sales =  $(10,439 \div 24,561) \times 100 = 42.5\%$

(ii) Anticipated cost of sales is as under

$$\text{Material} = 1.10 \times ₹ 9,825 = ₹ 10,808$$

$$\text{Labour} = 1.15 \times ₹ 7,368 = ₹ 8,473$$

$$\text{Overhead} = \text{Existing} = ₹ 7,368$$

$$26,649$$

Anticipated percentage of profit on cost of sales = 42.5%

Hence anticipated profit = ₹ 26,649 x 0.425 = ₹ 11,326

*Check*

Increase in cost of sale = 20% decrease in existing profit

Increase in cost of sales = 26,649 - 24,561 = ₹ 2,088

20% decrease in existing profit = 20% of 10,439 = ₹ 2,088

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## Standard Costing & Variance Analysis

**Q27. Compute the sales variances (total, price and volume) from the following figures:**

Product	Budgeted quantity	Budgeted Price per Unit(₹)	Actual quantity	Actual Price per unit (₹)
<b>A</b>	<b>4000</b>	<b>25</b>	<b>4800</b>	<b>30</b>
<b>B</b>	<b>3000</b>	<b>50</b>	<b>2800</b>	<b>45</b>
<b>C</b>	<b>2000</b>	<b>75</b>	<b>2400</b>	<b>70</b>
<b>D</b>	<b>1000</b>	<b>100</b>	<b>800</b>	<b>105</b>

**Answer 27:**

Working:

Product	Budgeted Price (₹) (a)	Actual Price (₹) (b)	Budgeted Qty. (c)	Actual Qty. (d)	Budgeted Sales (₹) (e) = (a) x (c)	Standard Sales (Actual Sales at Budgeted price) (₹) (f) = (a)x(d)	Actual Sales (₹) (g) = (b) x (d)
A	25	30	4,000	4,800	1,00,000	1,20,000	1,44,000
B	50	45	3,000	2,800	1,50,000	1,40,000	1,26,000
C	75	70	2,000	2,400	1,50,000	1,80,000	1,68,000
D	100	105	1,000	800	1,00,000	80,000	84,000
					<b>5,00,000</b>	<b>5,20,000</b>	<b>5,22,000</b>

Calculation of variances:

(1) Sale Price Variance = Actual Quantity (Actual Price - Budgeted Price)  
 = Actual Sales - Standard. Sales  
 = 5,22,000 - 5,20,000 = ₹2,000 (F)

(2) Sales Volume Variance = Budgeted Price (Actual Quantity Budgeted Quantity)  
 = Standard Sales (Actual Sale at Standard Price) – Budgeted Sales  
 = 5,20,000 - 5,00,000 = ₹20,000 (F)

(3) Total Sales Variance = Actual Sales - Budgeted Sales  
 = 5,22,000 - 5,00,000 = ₹22,000 (F)

Verification: Total Sales Variance (₹22,000 F) = Sales Price Variance (₹2,000 F) + Sales Volume Variance (₹20,000 F)

**Q28.**

The standard material inputs required for 1,000 kgs. of a finished product are given below:

Material	Quantity(in kg.)	Standard rate per kg.( ₹)
P	450	20
Q	400	40
R	<u>250</u>	60
	<u>1100</u>	
<b>Standard Loss</b>	<u>100</u>	
<b>Standard output</b>	<u>1000</u>	

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Actual production in a period was 20,000 kgs. Of the finished product for which the actual quantities of material used and the prices paid thereof are as under:

Material	Quantity used (in kg.)	Purchase price per kg.( ₹)
P	10,000	19
Q	8,500	42
R	4,500	65

Calculate the Material Cost Variance, Material Price Variance, Material Usage Variance, Material Mix Variance and Material Yield Variance. Present reconciliation among the variances.

**Answer 28:**

Material	Actual rate(₹) AR	Actual Qty(kg.) AQ	AQ x AR (1)	Standard Rate(₹)	AQ x SR (2)	SP* x SR (3)	SQ** x SR (4)
P	19	10,000	1,90,000	20	2,00,000	1,88,182	1,80,000
Q	42	8,500	3,57,000	40	3,40,000	3,34,545	3,20,000
R	65	4,500	2,92,500	60	2,70,000	3,13,636	3,00,000
			8,39,500		8,10,000	8,36,363	8,00,000

Standard production (SP\*)

$$P = 23,000 \times (450/1,100) = 9409.09$$

$$P = 23,000 \times (400/1,100) = 8363.636$$

$$P = 23,000 \times (250/1,100) = 5227.27$$

Standard quantity (SQ\*\*) for 20000kg.

$$P = 450 \times 20 = 9,000$$

$$P = 400 \times 20 = 8,000$$

$$P = 250 \times 20 = 5,000$$

Calculation of Variances:

$$\text{Material Price variance} = 1 - 2 = 8,39,500 - 8,10,000 = 29,500(A)$$

$$\text{Material Mix variance} = 2 - 3 = 8,10,000 - 8,36,363 = 26,363(F)$$

$$\text{Material Yield variance} = 3 - 4 = 8,36,363 - 8,00,000 = 36,363(A)$$

$$\text{Material Usage variance} = 2-4 = 8,10,000 - 8,00,000 = 10,000(A)$$

$$\text{Material Cost variance} = 1-4 = 8,39,500 - 8,00,000 = 39,500(A)$$

Reconciliation

$$\text{Material Usage variance} = \text{Material Mix variance} + \text{Material Yield variance}$$

$$= 26,363(F) + 36,363(A) = 10,000 (A)$$

$$\text{Material Cost variance} = \text{Material Price variance} + \text{Material Usage variance}$$

$$= 29,500(A) + 10,000(A) = 39,500(A)$$

## Budget and Budgetary Control

Q29.

(a) VC Pvt.Ltd produces and sells a single product. Sales budget for calendar year 2017 by quarters is as under:

Quarters	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>
No. of units to be sold	20,000	24,000	30,000	36,000



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## Q30. Short Notes

- (a) Perpetual Inventory System
- (b) Just in time
- (c) VED analysis.
- (d) Semi-Variable Overheads
- (e) Principal Budget Factor
- (f) Performance Budgeting

### Answer 30:

#### (a) Perpetual Inventory System

Perpetual Inventory System may be defined as 'a system of records maintained by the controlling department, which reflects the physical movements of stocks and their current balance'. Perpetual inventory means the system of stock records and continuous stock taking, where as continuous stock taking means only the physical verification of the stock records with actual stocks.

To ensure the accuracy of the perpetual inventory records (bin card and Stores ledger), physical verification of stores is made by a programme of continuous stock taking.

The operation of the perpetual inventory system may be as follows :-

- (a) The stock records are maintained and up to date posting of transactions are made there in so that current balance may be known at any time.
- (b) Different sections of the stores are taken up by rotation for physical checking. Every day some items are checked so that every item may be checked for a number of times during the year.
- (c) Stores received but awaiting quality inspection are not mixed up with the regular stores at the time of physical verification, because entries relating to such stores have not yet been made in the stock records.
- (d) The physical stock available in the store, after counting, weighing, measuring or listing as the case may be, is properly recorded in the bin cards / Inventory tags and stock verification sheets.

#### (b) Just in time

Just in time (JIT) is a production strategy that strives to improve a business return on investment by reducing in-process inventory and associated carrying costs. Inventory is seen as incurring costs, or waste, instead of adding and storing value, contrary to traditional accounting. In short, the Just-in-Time inventory system focuses on "the right material, at the right time, at the right place, and in the exact amount" without the safety net of inventory.

The advantages of Just-in-Time system are as follows :-

- (a) Increased emphasis on supplier relationships. A company without inventory does not want a supply system problem that creates a part shortage. This makes supplier relationships extremely important.
- (b) Supplies come in at regular intervals throughout the production day. Supply is synchronized with production demand and the optimal amount of inventory is on hand at any time. When parts move directly from the truck to the point of assembly, the need for storage facilities is reduced.
- (c) Reduces the working capital requirements, as very little inventory is maintained.
- (d) Minimizes storage space.
- (e) Reduces the chance of inventory obsolescence or damage.

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(c) **VED analysis.**

VED stands for Vital, Essential and Desirable- analysis is used primarily for control of spare parts. The spare parts can be classified in to three categories i.e Vital, Essential and Desirable- keeping in view the criticality to production.

**Vital:** The spares, stock-out of which even for a short time will stop the production for quite some time, and where in the stock-out cost is very high are known as Vital spares. For a car Assembly Company, Engine is a vital part, without the engine the assembly activity will not be started.

**Essential:** The spares or material absence of which cannot be tolerated for more than few hours or a day and the cost of lost production is high and which is essential for production to continue are known as Essential items. For a car assembly company 'Tyres' is an essential item, without fixing the tyres the assembly of car will not be completed.

**Desirable:** The Desirable spares are those parts which are needed, but their absence for even a week or more also will not lead to stoppage of production. For example, CD player, for a car assembly company.

Some spares though small in value, may be vital for production, requires constant attention. Such spares may not pay attention if the organization adopts ABC analysis.

(d) **Semi-Variable Overheads**

These are a sort of mixed or hybrid costs, partly fixed and partly variable costs. For example Telephone expenses, include a fixed portion of annual charge plus variable charge according to the calls. Thus total telephone expenses are semi-variable.

Semi-variable overheads are of two types:-

- (i) The expenses which change with the change in volume of output, but the variation cost is less than proportionate to change in output. Examples are power & fuel, lighting, repairs and maintenance of buildings, etc.
- (ii) The costs tend to remain constant within certain range of output, then jump up and remain constant for another range and so on.

***Semi variable cost needs to be classified into fixed and variable due to the following reasons:***

- (a) Effective Cost Control
- (b) Decision Making
- (c) Preparation of Break-even Charts
- (d) Marginal Costing
- (e) Method of Absorption Costing
- (f) Flexible Budget

***Methods of classification of semi variable cost in fixed and variable***

- (a) Graphical Method
- (b) Simultaneous Equations
- (d) High and Low Method
- (d) Least Square Method

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## (e) Principal Budget Factor

Budgets cover all the functional areas of the organisation. For the effective implementation of the budgetary system, all the functional areas are to be considered which are interlinked. Because of these interlinks, certain factors have the ability to affect all other budgets. Such factor is known as principle budget factor.

Principal Budget factor is the factor the extent of influence of which must first be assessed in order to ensure that the functional budgets are reasonably capable of fulfillment. A principal budget factor may be lack of demand, scarcity of raw material, non-availability of skilled labour, inadequate working capital etc.

If for example, the organisation has the capacity to produce 2500 units per annum. But the production department is able to produce only 1800 units due to non-availability of raw materials. In this case, non-availability of raw materials is the principal budget factor (limiting factor). If the sales manger estimates that he can sell only 1500 units due to lack of demand. Then lack of demand is the principal budget factor. This concept is also known as key factor, or governing factor. This factor highlights the constraints with in which the organisation functions.

## (f) Performance Budgeting

Performance Budgeting is synonymous with Responsibility Accounting which means thus the responsibility of various levels of management is predetermined in terms of output or result keeping in view the authority vested with them. The main concepts of such a system are enumerated below:

- (a) It is based on a classification of managerial level for the purpose of establishing a budget for each level. The individual in charge of that level should be made responsible and held accountable for its performance over a given period of time.
- (b) The starting point of the performance budgeting system rests with the organisation chart in which the spheres of jurisdiction have been determined. Authority leads to the responsibility for certain costs and expenses which are forecast or present in the budget with the knowledge of the manager concerned.
- (c) The costs in each individual's or department's budget should be limited to the cost controllable by him.
- (d) The person concerned should have the authority to bear the responsibility.