

Roll No.

Total No. of Questions – 6

Total No. of Printed Pages – 16

Time Allowed – 3 Hours

Maximum Marks – 100

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Answer to questions are to be given only in English except in the case of candidates who have opted for Hindi Medium. If a candidate who has not opted for Hindi Medium, his/her answers in Hindi will not be valued.

Question No. 1 is compulsory.

Answer any **four** questions from the remaining **five** questions.

Working notes should form part of the answers.

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1. Answer the following :

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=20

- (a) TSK Limited manufactures a variety of products. The annual demand for one of its products – Product 'X' is estimated as 1,35,000 units. Product 'X' is to be manufactured done in batches. Set up cost of each batch is ₹ 3,375 and inventory holding cost is ₹ 5 per unit. It is expected that demand of Product 'X' would be uniform throughout the year.

Required :

- (i) Calculate the Economic Batch Quantity (EBQ) for Product 'X'.



SFR

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(ii) Assuming that the company has a policy of manufacturing 7,500 units of Product 'X' per batch, calculate the additional cost incurred as compared to the cost incurred as per Economic Batch Quantity (EBQ) as computed in (i) above.

(b) SMC Company Limited is producing a particular design of toys under the following existing incentive system :

Normal working hours in the week 48 hours

Late shift hours in the week 12 hours

Rate of payment Normal working : ₹ 150 per hour

Late shift : ₹ 300 per hour

Average output per operator for 60 hours per week (including late shift hours) : 80 toys.

The company's management has now decided to implement a system of labour cost payment with either the Rowan Premium Plan or the Halsey Premium Plan in order to increase output, eliminate late shift overtime, and reduce the labour cost.

The following information is obtained :

The standard time allotted for ten toys is seven and half hours.

Time rate : ₹ 150 per hour (as usual).

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(3)

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Assuming that the operator works for 48-hours in a week and produces 100 toys, you are required to calculate the weekly earnings for one operator under-

- (i) The existing Time Rate,
- (ii) Rowan Premium Plan and,
- (iii) Halsey Premium Plan (50%).

(c) The following information pertains to ZB Limited for the year :

Profit volume ratio	30%
Margin of Safety (as % of total sales)	25%
Fixed cost	₹ 12,60,000

You are required to calculate :

- (i) Break even sales value (₹),
- (ii) Total sales value (₹) at present,
- (iii) Proposed sales value (₹) if company wants to earn the present profit after reduction of 10% in fixed cost,
- (iv) Sales in value (₹) to be made to earn a profit of 20% on sales assuming fixed cost remains unchanged,
- (v) New Margin of Safety if the sales value at present as computed in (ii) decreased by 12.5%.

SFR

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(4)

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- (d) RST Toll Plaza Limited built an 80 kilometer long highway between two cities and operates a toll plaza to collect tolls from passing vehicles using the highway. The company has estimated that 50,000 light weight, 12,000 medium weight and 10,000 heavy weight vehicles will be using the highway in one month in outward journey and the same number for return journey.

As per government notification, vehicles used for medical emergencies, Members of Parliament, and essential services are exempt from toll charges. It is estimated that 10% of light weight vehicles will pass the highway for such use.

It is the policy of the company that if vehicles return within 24 hours of their outward journey, the toll fare will be reduced by 25 percent automatically. It is estimated that 30% of chargeable light weight vehicles return within the specified time frame.

The toll charges for medium weight vehicles is to be fixed as 2.5 times of the light weight vehicles and that of heavy weight vehicles as 2 times of the medium weight vehicles.

The toll operating and maintenance cost for a month is ₹ 59,09,090. The company requires a profit of 10% over the total cost to cover interest and other costs.

Required :

- (i) Calculate the toll rate for each type of vehicle if concession facilities are not available on the return journey.
- (ii) Calculate the toll rate that will be charged from light weight vehicles if a return journey concession facility is available, assuming that the revenue earned from light weight vehicles calculated in option (i) remains the same.

SFR

- 2/ (a) A Limited has furnished the following information for the months from 1st January to 30th April, 2023 : 10

	January	February	March	April
Number of Working days	25	24	26	25
Production (in units) per working day	50	55	60	52
Raw Material Purchases (% by weights to total of 4 months)	21%	26%	30%	23%
Purchase price of raw material (per kg)	₹ 10	₹ 12	₹ 13	₹ 11

Quantity of raw material per unit of product : 4 kg.

Opening stock of raw material on 1st January : 6,020 kg. (Cost ₹ 63, 210)

Closing stock of raw material on 30th April : 5,100 kg.

All the purchases of material are made at the start of each month.

Required :

- Calculate the consumption of raw materials (in kgs) month-by-month and in total.
- Calculate the month-wise quantity and value of raw materials purchased.
- Prepare the priced stores ledger for each month using the FIFO method.

- (b) B Limited has taken a contract for ₹ 70,00,000 and furnishes the following information :

	1 st Year	2 nd Year
	(Amount in ₹)	(Amount in ₹)
Material	12,50,000	13,65,000
Wages	12,50,000	11,44,000
Direct Expenses	4,20,000	3,80,000
Indirect Expenses	2,70,000	2,60,000
Work Certified	32,00,000	70,00,000
Work Uncertified	2,19,000	—

Other Information :

- Plant costing ₹ 3,40,000 was bought at the commencement of the contract.
- Depreciation of ₹ 85,000 per annum is charged on the plant on Straight Line Method (SLM) basis.
- There is a provision for escalation clause in the contract for increase in material rate and wage rate in the second year only.

Standard material for the first and second year was 12,000 units each year @ ₹ 90 per unit whereas the actual consumption was 12,500 @ ₹ 100 per unit in the first year and 13,000 units @ ₹ 105 per unit in the 2nd year. Standard labour hours for first year were 10,000 hours and for the second year it was 9,000 hours. Standard wage rate was ₹ 120 per hour. The firm has paid for

(7)

SFR

Marks

10,000 hours @ ₹ 125 per hour in the first year and 8,800 hours @ ₹ 130 per hour in the second year.

Required :

- (i) Prepare Contract Account for both years without considering escalation clause.
- (ii) Compute the total value of contract by considering the escalation clause.
- (iii) Compute the total increase / (decrease) in the cost of material and wages for both the years.

3. (a) PQR Limited manufactures three products – Product X, Product Y and Product Z. The output for the current year is 2,50,000 units of Product X, 2,80,000 units of Product Y and 3,20,000 units of Product Z respectively.

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Selling price of Product X is 1.25 times of Product Z whereas Product Y can be sold at double the price at which product Z can be sold. Product Z can be sold at a profit of 20% on its marginal cost.

Other information are as follows :

	Product X	Product Y	Product Z
Direct Material Cost (per unit)	₹ 20	₹ 20	₹ 20
Direct Wages Cost (per unit)	₹ 16	₹ 24	₹ 16

Raw material used for manufacturing all the three products is the same. Direct Wages are paid @ ₹ 4 per labour hour.

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(8)

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Total overhead cost of the company is ₹ 52,80,000 for the year, out of which ₹ 1 per labour hour is variable and the rest is fixed.

In the next year it is expected that sales of product X and product Z will increase by 12% and 15% respectively and sale of product Y will decline by 5%. The total overhead cost of the company for the next year is estimated at ₹ 55,08,000. The variable cost of ₹ 1 per labour hour remains unchanged.

It is anticipated that all other costs will remain same for the next year and there is no opening and closing stock.

Selling Price per unit of each product will remain unchanged in the next year.

Required :

Prepare a budget showing the current position and the position for the next year clearly indicating the total product-wise contribution and profit for the company as a whole.

(b) The following information is available from SN Manufacturing Limited's books for the month of April 2023.

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	April 1	April 30
Opening and closing inventories data :		
Stock of finished goods	2,500 units	?
Stock of raw materials	₹ 42,500	₹ 38,600
Work-in-progress	₹ 42,500	₹ 42,800

SFR

(9)

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Other data are :		
Raw materials purchased		₹ 6,95,000
Carriage inward		₹ 36,200
Direct wages paid		₹ 3,22,800
Royalty paid for production		₹ 35,800
Purchases of special designs, moulds and patterns (estimated life 12 production cycles)		₹ 1,53,600
Power, fuel and haulage (factory)		₹ 70,600
Research and development costs for improving the production process (amortized)		₹ 31,680
Primary packing cost (necessary to maintain quality)		₹ 6,920
Administrative Overhead		₹ 46,765
Salary and wages for supervisor and foremen		₹ 28,000

Other information :

- Opening stock of finished goods is to be valued at ₹ 8.05 per unit.
- During the month of April, 1,52,000 units were produced and 1,52,600 units were sold. The closing stock of finished goods is to be valued at the relevant month's cost of production. The company follows the FIFO method.

SFR

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- Selling and distribution expenses are to be charged at 20 paise per unit.
- Assume that one production cycle is completed in one month.

Required :

- (i) Prepare a cost sheet for the month ended on April 30, 2023, showing the various elements of cost (raw material consumed, prime cost, factory cost, cost of production, cost of goods sold, and cost of sales).
- (ii) Calculate the selling price per unit if profit is charged at 20 percent on sales.

4. (a) ABC Company produces a Product 'X' that passes through three processes : R, S and T. Three types of raw materials, viz., J, K, and L are used in the ratio of 40:40:20 in process R. The output of each process is transferred to next process. Process loss is 10% of total input in each process. At the stage of output in process T, a by-product 'Z' is emerging and the ratio of the main product 'X' to the by-product 'Z' is 80 : 20. The selling price of product 'X' is ₹ 60 per kg.

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(11)

SFR

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The company produced 14,580 kgs of product 'X'.

Material price : Material J @ ₹ 15 per kg; Material K @ ₹ 9 per kg;
Material L @ ₹ 7 per kg. Process costs are as follows :

Process	Variable cost per kg (₹)	Fixed cost of Input (₹)
R	5.00	42,000
S	4.50	5,000
T	3.40	4,800

The by-product 'Z' cannot be processed further and can be sold at ₹ 30 per kg at the split-off stage. There is no realizable value of process losses at any stage.

Required :

Present a statement showing the apportionment of joint costs on the basis of the sales value of product 'X' and by-product 'Z' at the split-off point and the profitability of product 'X' and by-product 'Z'.

- (b) Beta Limited produces 50,000 Units, 45,000 Units and 62,000 Units of product 'A', 'B' and 'C' respectively. At present the company follows absorption costing method and absorbs overhead on the basis of direct labour hours. Now, the company wants to adopt Activity Based Costing.

5

SFR

P.T.O.

The information provided by Beta Limited is as follows :

	Product A	Product B	Product C
Floor Space Occupied	5,000 Sq. Ft.	4,500 Sq. Ft.	6,200 Sq. Ft.
Direct Labour Hours	7,500 Hours	7,200 Hours	7,800 Hours
Direct Machine Hours	6,000 Hours	4,500 Hours	4,650 Hours
Power consumption	32%	28%	40%

Overhead for year are as follows :

	₹
Rent & Taxes	8,63,500
Electricity Expenses	10,66,475
Indirect labour	13,16,250
Repair & Maintenance	1,28,775
	33,75,000

Required :

- Calculate the overhead rate per labour hour under Absorption Costing.
- Prepare a cost statement showing overhead cost per unit for each product – 'A', 'B' and 'C' as per Activity based Costing.

(13)

SFR

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- (c) MNP Company Limited produces two products 'A' and 'B'. The relevant cost and sales data per unit of output is as follows : 5

Particulars	Product A	Product B
	(₹)	(₹)
Direct material	55	60
Direct labour	35	45
Variable factory overheads	40	20
Selling Price	180	175

The availability of machine hours is limited to 55,000 hours for the month. The monthly demand for product 'A' and product 'B' is 5,000 units and 6,000 units, respectively. The fixed expenses of the company are ₹ 1,40,000 per month. Variable factory overheads are ₹ 4 per machine hour. The company can produce both products according to the market demand.

Required :

Calculate the product mix that generates maximum profit for the company in the given situation and also calculate profit of the company.

SFR

P.T.O.

5. (a) NC Limited uses a standard costing system for the manufacturing of its product 'X'. The following information is available for the last week of the month :

- 25,000 kg of raw material were actually purchased for ₹ 3,12,500. The expected output is 8 units of product 'X' from each one kg of raw material. There is no opening and closing inventories. The material price variance and material cost variance, as per cost records, are ₹ 12,500 (F) and ₹ 1800 (A), respectively.
- The standard time to produce a batch of 10 units of product 'X' is 15 minutes. The standard wage rate per labour hour is ₹ 50. The company employs 125 workers in two categories, skilled and semi-skilled, in a ratio of 60 : 40. The hourly wages actually paid were ₹ 50 per hour for skilled workers and ₹ 40 per hour for semi-skilled workers. The weekly working hours are 40 hours per worker. Standard wage rate is the same for skilled and semi-skilled workers.
- The monthly fixed overheads are budgeted at ₹ 76,480. Overheads are evenly distributed throughout the month and assume 4 weeks in a month. In the last week of the month, the actual fixed overhead expenses were ₹ 19,500.

Required :

- (i) Calculate the standard price per kg and the standard quantity of raw material.

(15)

SFR

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- (ii) Calculate the material usage variance, labour cost variance, and labour efficiency variance.
- (iii) Calculate the fixed overhead cost variance, the fixed overhead expenditure variance and the fixed overhead volume variance.

Note : Indicate the nature of variance i.e. Favourable or Adverse.

- (b) The following information has been obtained from financial accounting and cost accounting records. 5

	Financial Accounting	Cost Accounting
	₹	₹
(i) Factory Overhead	94,750	90,000
(ii) Administrative Overhead	60,000	57,000
(iii) Selling Overhead	55,000	61,500
(iv) Opening Stock	17,500	22,500
(v) Closing Stock	12,500	15,000

Required :

Indicate under-recovery and over-recovery and their effects on cost accounting profit.

[Note : You are not required to prepare reconciliation statement.]

- (c) How does the high employee turnover increase the cost of production ? 5
Explain.

SFR

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6. Answer any **four** of the following :

- Define cost objects and give examples of any four cost objects.
- Explain what is meant by Practical capacity and Normal capacity. How is normal capacity determined ?
- What is meant by Activity Based Management (ABM) and discuss how Activity Based Management can be used in the business ?
- Suggest any one basis of re-apportionment of service department overheads over production departments in the following instances :

Cost of Service Department	Basis
(i) Maintenance and Repair Shop	
(ii) Hospital and Dispensary	
(iii) Fire Protection	
(iv) Stores Department	
(v) Transport Department	
(vi) Computer Section	
(vii) Power House (Electric Power Cost)	
(viii) Inspection	
(ix) Tool Room	
(x) Time-keeping	

- How will you treat normal loss, abnormal loss and abnormal gain in process costing ? Explain.