Roll No. .

Total No. of Quetions – **6**

Total No. of Printed Pages – **12**

Time Allowed – **3** Hours

Maximum Marks – **100**

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Answers 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.

In case, any candidate answers extra question(s)/sub-question(s) over and above the required number, then only the requisite number of questions first answered in the answer book shall be valued and subsequent extra question(s) answered shall be ignored.

Working notes should form part of the respective answers.

Wherever necessary, candidates may make appropriate assumptions and clearly state them.

No Statistical or other table will be provided with this question paper.

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1. GL Ltd. is a multiproduct manufacturing concern functioning with four divisions. The Electrical Division of the company is producing many electrical products including electrical switches. This division functioning at its maximum capacity sells its switches in the open market at ₹ 25 each. The variable cost per switch to the division is ₹ 16. **20**

The Household Division, another division of GL Ltd., functioning at 70% capacity asked the Electrical Division to supply 5000 switches per month at the rate of ₹ 18 each to fit in night lamps produced by it. The total cost per night lamp is being estimated as detailed below ;

	₹
Components purchased from outside suppliers	50.00
Switch if purchased internally	18.00
Other variable costs	40.00
Fixed overheads	21.00
Total cost per night lamp	**129.00**

The Household Division is marketing night lamps at a price of ₹ 130 each, with a very small margin, as it is doing business is a very competitive environment. Any increase in price made by the division will push out the division from the market. Therefore, the division can not pay anything more to switches if they are supplied by the Electrical Division. Further, the

Marks

manager of the division informed that it is very much essential to keep on the market share for night lamps by the Household Division to retain the experienced workers of the division. The company is using return on investments (ROI) as a scale to measure the divisional performances and also marginal costing approach for decision making.

Required :

(i) Would you recommend the supply of switches to Household Division by Electrical Division at a price of ₹ 18 each ? Substantiate your recommendation with suitable reasons. **5**

(ii) Analyze whether it would be beneficial to the company as a whole the supply of switches to Household Division at a unit price of ₹ 18 by Electrical Division. **6**

(iii) Do you feel that the Divisional Managers should accept the inter-divisional transfers in principle ? If yes, what should be the range of transfer price ? **5**

(iv) Suggest the steps to be taken by the chief executive of the company to change the attitude of divisional heads if they are against the inter-divisional transfers. **4**

2. Rohni Steel Company produces three grades of steel – super, good and normal grade. Each of these products (Grades) has high demand in the market and company is able to sell as much as it can produce these products.

Marks

The furnace operation is a bottle-neck in the process, The company is running at 100% of capacity. The company wants to improve its profitability. The variable conversion cost is ₹ 100 per process hour. The fixed cost is ₹ 48,00,000. In addition, the Cost Accountant was able to determine the following information about the three products (grades) :

	Super Grade	Good Grade	Normal Grade
Budgeted Units Produced	6000	6000	6000
Total process hours per unit	12	12	10
Furnace hours per unit	6	5	4
Unit Selling Price	₹ 3600	₹ 3400	₹ 3000
Direct Material cost per unit	₹ 2100	₹ 1900	₹ 1720

The furnace operation is part of the total process for each of these three products. Thus furnace hours are the part of process hours.

Required

(i) Determine the unit contribution margin for each product. **5**

(ii) Give an analysis to determine the relative product profitability, assuming that the furnace is a bottleneck. **5**

(iii) Management wishes to improve profitability by increasing prices on selected products. At what price would super and good grades need to be offered in order to produce the same relative profitability as normal grade steel ? **10**

Marks

3. Trident Toys Ltd. manufactures a single product and the standard cost system is followed. Standard cost per unit is worked out as follows :

		₹
Materials (10 Kgs. @ ₹ 4 Per Kg)	=	40
Labour (8 hours @ ₹ 8 per hour)	=	64
Variable overheads (8 hours @ ₹ 3 per hour)	=	24
Fixed overheads (8 hours @ ₹ 3 per hour)	=	24
Standard Profit	=	**56**

Overheads are allocated on the basis of direct labour hours. In the month of April 2018, there was no difference between the budgeted and actual selling price and there were no opening or closing stock during the period.

The other details for the month of April 2018 are as under:

	Budgeted	Actual
Production and Sales	2000 Units	1800 Units
Direct Materials	20000 Kgs.@ ₹ 4 per kg	20000Kgs.@ ₹ 4 per kg
Direct Labour	16000Hrs.@ ₹ 8 per Hr	14800Hrs.@ ₹ 8 per Hr
Variable Overheads	₹ 48000	₹ 44400
Fixed Overheads	₹ 48000	₹ 48000

Required :

I. Reconcile the budgeted and actual profit with the help of variances according to each of the following method : **12**

Marks

(a) The conventional method

(b) The relevant cost method assuming that

(i) Materials are scarce and are restricted to supply of 20000 Kgs. for the period.

(ii) Labour hours are limited and available hours are only 16000 hours for the period.

(iii) There are no scarce inputs.

II. Comment on efficiency and responsibility of the Sales Manager for not using scarce resources. **8**

4. (a) A company is planning to improve its profit level at least by 10% from the preliminary budget estimates of a profit of ₹ 32,80,000 for the coming year. It has worked out the following profit improvement plan: **10**

(i) In the year just concluded the sales of the company were 10% of the total market of 12,00,000 units. For the preparation of the original budget estimate, the same market demand and the same share of market for the company was envisaged. Now it has been estimated that the total market demand will increase by 18% and the company's market share will increase to 11% from the present level of 10%.

 Marks

(ii) The products are sold in two sizes - large and medium. The sales mix of each size was 50:50 so far. Now it is planned that the sales will be 40% of large and 60% of medium. The medium packs and large packs have a contribution of ₹ 10 and ₹ 8 per pack respectively. The budget proposes to raise the price in such a manner that the contribution per pack will increase by ₹ 0.60 for each size.

(iii) There will be an additional expenditure on sales promotion worth ₹ 78000.

(iv) The company proposes to save ₹ 9000 by saving on interest cost in the coming year by better financial management.

You are required to draw a profit improvement plan in financial terms and spelling out separately the effect of various factors on profit.

(b) MNP Co. Ltd. makes digital watches. The company is preparing a product life cycle budget for a new watch. Development on the new watch is to start shortly. Estimates for new watch are as under :

Life Cycle units manufactured and sold	2,40,000
Selling Price Per Watch	(₹) 500
Life Cycle Costs :	
R&D and design cost	(₹) 80 Lakh

Marks

Manufacturing:	
Variable Cost Per Watch	(₹) 120
Variable Cost Per Batch	(₹) 4000
Watches Per Batch	300
Fixed Costs	(₹) 112 Lakh
Marketing :	
Variable Cost Per batch	(₹) 24
Fixed Costs	(₹) 8 Lakh
Distribution:	
Variable Cost Per Watch	(₹) 240
Watches Per Batch	96
Fixed Costs	(₹) 45 Lakh
Customer service cost per watch	(₹) 10

Required :

(i) Calculate the budgeted life cycle operating income for the new watch. **5**

OR

Suggest the strategies to be adopted by the MNP Co. Ltd. to develop a new watch. **5**

(ii) What percentage of the budgeted total product life cycle costs will be incurred by the end of the R&D and design stage ? **2**

(iii) An analysis reveals that 75% of the budgeted total life cycle costs of new watch will be locked in at the R&D and design stage. What are the implications for managing costs of the new watch ? **3**

Marks

5. (a) JK Ltd. produces and sells a single product. Presently the company is having its quality control system in a small way at an annual external failure and internal failure costs of ₹ 4,40,000 and ₹ 8,50,000 respectively. As the company is not able to ensure supply of good quality products upto the expectations of its customers and wants to manage competition to retain market share considers an alternative quality control system. It is expected that the implementation of the system annually will lead to a prevention cost of ₹ 5,60,000 and an appraisal cost of ₹ 70,000. The external and internal failure costs will reduce by ₹ 1,00,000 and ₹ 4,10,000 respectively in the new system. All other activities and costs will remain unchanged.

Required :

(i) Examine the new quality control proposal and recommend the acceptance or otherwise of the proposal both from financial and non-financial perspectives. **6**

(ii) What is your advice to the company, if the company wants to achieve zero defect through a continuous quality improvement programme ? **2**

(iii) Suggest a suitable quality control level at a minimum cost. **2**

Marks

(b) JM Ltd. is engaged in the manufacture of plastic bottles of a standard size. The factory has 5 machines of identical size, each capable of producing 40 bottles per hour. The variable cost per bottle is ₹ 0.32 and the selling price is ₹ 0.80 each. The company has received an offer from another company for manufacture of 40000 units of a plastic moulded toy. The price per toy is ₹ 30 and the variable cost is ₹ 24 each. In case of the company takes up the job, it has to meet the expenses of making a special mould required for the manufacture of the toy. The cost of the mould is ₹ 1,00,000. The company's time study analysis shows that the machines can produce only 16 toys per hour. The company has a total capacity of 10000 hours during the period in which the toy is required to be manufactured. The fixed costs excluding the cost of construction of the mould during the period will be ₹ 10 Lakh.

The company has an order for the supply of 3,00,000 bottles during the period.

Required

(i) Do you advise the company to take up the order for manufacturing plastic moulded toys during the time when it has an order in its book for the supply of 3,00,000 bottles. **3**

(ii) If the order for the supply of bottles increases to 4,00,000 bottles, will you advise the company to accept the order for the supply of plastic moulded toys ? State the reasons. **3**

Marks

(iii) An associate company of JM Ltd. has idle capacity and is willing to take up the whole or part of the manufacturing of the plastic moulded toys on sub-contracting basis. The subcontract price inclusive of the cost of construction of mould is ₹ 28 per toy. Determine the minimum expected excess machine hour capacity needed to justify producing any portion of the toy order by the company itself rather than subcontracting. **4**

6. (a) Hindustan Ltd. supplies the following information relating to a vital equipment used in its production activity for April, 2018 :

Total time worked during the month	210 hrs.
Total production during the month	2800 units.
No. of units accepted out of total production	2520 units.
Standard time for actual production of the month	180 hrs.
Time lost during the month	28 hrs.

Required :

(i) State an appropriate approach to measure the total productive maintenance performance of an equipment. **2**

(ii) Quantify the total productive maintenance performance of the above-mentioned equipment by using the approach stated in (i) above. **6**

(iii) Comment on the effectiveness of maintenance of the equipment. **2**

Marks

(b) ABC Airlines has two divisions organized as profit centres, the Passenger Division and the Cargo Division. The following divisional informations were given for the year ended 31st March 2018 :

	Cargo Division	Passenger Division	Total
Number of personnel trained	200	800	1000
Number of flights	350	250	600
Number of reservations requested	NIL	7000	7000
Revenue	₹ 42,00,000	₹ 42,00,000	₹ 84,00,000
Operating Expenses (excluding service department charges)	₹ 36,00,000	₹ 28,50,000	₹ 64,50,000
Service Department Charges:			
Training	₹ 3,20,000	₹ 3,20,000	₹ 6,40,000
Flight Scheduling	₹ 1,50,000	₹ 1,50,000	₹ 3,00,000
Reservation	₹ 1,05,000	₹ 1,05,000	₹ 2,10,000

The service department charge rate for the service department costs was based on revenue. Since the revenue of both the divisions were the same, the service department charges to each division were also the same.

Required :

(i) Does the income from operations for the two divisions accurately measure performance ? **3**

(ii) Prepare the divisional income statement using the activity bases provided above in revising the service department charges. **7**

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