

श्रीराम

Costing

Roll No. 21166

Total No. of Questions—6]

[Total No. of Printed Pages—8

Time Allowed—3 Hours

Maximum Marks—100

FST

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, answers in Hindi, his answers in Hindi will not be valued.

Question No. 1 is compulsory. Answer any **four** from the rest.

Working notes should form part of the answer.

Marks

1. (a) A Ltd. makes and sells a single product. The company's trading results for the year 2007 are : 12

Figs.—Rs. '000 (Year 2007)

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

For the year 2008, the following are expected :

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

It is also known that :

- (a) In 2006, overhead expenditure totalled to Rs. 8,00,000.
- (b) Total overhead cost inflation for 2007 has been 5% more than 2006.

FST

P. T. O.

Assume that Divisions A and B will have to operate during the year.

What is the best strategy for :

(i) Department A ?

(ii) Department B, given that A will use its best strategy ?

(iii) For X Ltd. as a whole ?

(b) What is Pareto Analysis ? Name some applications.

5

4. (a) Biscuit Ltd. manufactures 3 types of biscuits, A, B and C, in a fully mechanised factory. The company has been following conventional method of costing and wishes to shift to Activity Based Costing System and therefore wishes to have the following data presented under both the systems for the month.

11

Inspection cost	Rs. p.m.	73,000
Machine—Repairs & maintenance	Rs. p.m.	1,42,000
Dye cost	Rs. p.m.	10,250
Selling overheads	Rs. p.m.	1,62,000

	Pdt A	B	C
Prime cost (Rs. per unit)	12	9	8
Selling price (Rs. per unit)	18	14	12
Gross production (units/production run)	2,520	2,810	3,010
No. of defective units/production run	20	10	10
Inspection :	<u>2500</u>	<u>28</u>	
No. of hours/production run	3	4	4
Dye cost/production run (Rs.)	200	300	250
No. of machine hours/production run	20	12	30
Sales—No. of units/month	25,000	56,000	27,000

The following additional information is given :

- (i) No accumulation of inventory is considered. All good units produced are sold.
- (ii) All manufacturing and selling overheads are conventionally allocated on the basis of units sold.

- (c) Production and sales volumes have been 25% higher in 2007 than in 2006.

The high-low method is being used by the company to estimate overhead expenditure.

You are required to :

- (i) Prepare a statement showing the estimated trading results for 2008.
 - (ii) Calculate the Break-even point for 2007 and 2008.
 - (iii) Comment on the BEP and profits of the years 2007 and 2008.
- (b) The following information is available :

9

Activity		No. of days	No. of men required per day
A	1-2	4	2
B	1-3	2	3
C	1-4	8	5
D	2-6	6	3
E	3-5	4	2
F	5-6	1	3
G	4-6	1	8

- (i) Draw the network and find the critical path.
 - (ii) What is the peak requirement of Manpower ? On which day(s) will this occur ?
 - (iii) If the maximum labour available on any day is only 10, when can the project be completed ?
- (c) Draw and explain the angle of incidence in a break-even chart. What is its significance to the management ?
2. (a) Is it justifiable to sell at a price below marginal cost at any time ? Mention the circumstances in which it is justifiable.

3

6

- (b) The following information has been extracted from the books of Goru Enterprises which is using standard costing system : 6

Actual output	=	9,000 units
Direct wages paid	=	1,10,000 hours at Rs. 22 per hour, of which 5,000 hours, being idle time, were not recorded in production
Standard hours	=	10 hours per unit
Labour efficiency variance	=	Rs. 3,75,000 (A) ✓
Standard variable OH	=	Rs. 150 per unit
Actual variable OH	=	Rs. 16,00,000

You are required to calculate :

- Idle time variance
 - Total variable overhead variance
 - Variable overhead expenditure variance
 - Variable overhead efficiency variance.
- (c) M Ltd. manufactures a special product purely carried out by manual labour. It has a capacity of 20,000 units. It estimates the following cost structure : 7

Direct material	30 Rs./unit
Direct labour (1 hour/unit)	20 Rs./unit
Variable overhead	10 Rs./unit

Fixed overheads at maximum capacity is Rs. 1,50,000.

It is estimated that at the current level of efficiency, each unit requires one hour for the first 5,000 units. Subsequently it is possible to achieve 80% learning rate. The market can absorb the first 5,000 units at Rs. 100 per unit. What should be the minimum selling price acceptable for an order of 15,000 units for a prospective client ?

3. (a) X Ltd. has two divisions, A and B, which manufacture products A and B respectively. A and B are profit centres with the respective Divisional Managers being given full responsibility and credit for their performance.

14

The following figures are presented :

	Division A Rs. Per Unit	Division B Rs. Per Unit	
Direct material cost	50	24*	*(other than A)
Material A, if transferred from Division A	—	144	
Material A, if purchased from outside	—	160	
Direct labour	25	14	
Variable production overhead	20	2	
Variable selling overhead	13	26	
Selling price in outside market	160	300	
Selling price to B	144	—	
Selling price to S Ltd.	—	250	

Other Information :

To make one unit of B, one unit of component A is needed. If transferred from A, B presently takes product A at Rs. 144 per unit, with A not incurring variable selling overheads on units transferred to B.

Product A is available in the outside market at Rs. 160 per unit from competitors.

B can sell its product B in the external market at Rs. 300 per unit, whereas, if it supplied to X Ltd.'s subsidiary, S Ltd., it supplies at Rs. 250 per unit, and need not incur variable selling overhead on units transferred to S Ltd. S Ltd. requires 6,000 units and stipulates a condition that either all 6,000 units be taken from B or none at all.

	A (units)	B (units)	
Manufacturing capacity	20,000	28,000	
Demand in external market	18,000	26,000	
S Ltd.'s demand	—	6,000 or zero	

(iii) Product A needs no advertisement. Due to its nutritive value, it is readily consumed by diabetic patients of a hospital. Advertisement costs included in the total selling overhead is Rs. 83,000.

(iv) Product B needs to be specially packed before being sold, so that it meets competition. Rs. 54,000 was the amount spent for the month in specially packing B, and this has been included in the total selling overhead cost given.

You are required to present productwise profitability of statements under the conventional system and the ABC system and accordingly rank the products.

(b) What do you mean by a dummy activity ? Why is it used in networking ? 4

(c) How would you use the Monte Carlo Simulation method in inventory control ? 4

5. (a) Transport Ltd. provides tourist vehicles of 3 types—20-seater vans, 8-seater big cars and 5-seater small cars. These seating capacities are excluding the drivers. The company has 4 vehicles of the 20-seater van type, 10 vehicles of the eight-seater big car types and 20 vehicles of the 5-seater small car types. These vehicles have to be used to transport employees of their client company from their residences to their offices and back. All the residences are in the same housing colony. The offices are at two different places, one is the Head Office and the other is the Branch. Each vehicle plies only one round trip per day, if residence to office in the morning and office to residence in the evening. Each day, 180 officials need to be transported in Route I (from residence to Head office and back) and 40 officials need to be transported in Route II (from Residence to Branch office and back). The cost per round trip for each type of vehicle along each route is given below. 8

You are required to formulate the information as a linear programming problem, with the objective of minimising the total cost of hiring vehicles for the client company, subject to the constraints mentioned above. (only formulation is required. Solution is not needed).

Figs.—Rs./round trip

	20-seater vans	8-seater big cars	5-seater small cars
Route I—			
Residence—Head Office and Back	600	400	300
Route II—			
Residence—Branch Office and Back	500	300	200

150250

- (b) Explain the concept and aim of theory of constraints. What are the key measures of theory of constraints ? 7
- (c) What are the major areas of decision-making in which differential costing is used ? 4

6. (a) Goods manufactured at 3 plants, A, B and C are required to be transported to sales outlets X, Y and Z. The unit costs of transporting the goods from the plants to the outlets are given below : 10

Plants	A	B	C	Total Demand
Sales outlets				
X	3	9	6	20
Y	4	4	6	40
Z	8	3	5	60
Total supply	40	50	30	120

You are required to :

- Compute the initial allocation by North-West Corner Rule.
 - Compute the initial allocation by Vogel's approximation method and check whether it is optional.
 - State your analysis on the optionality of allocation under North-West corner Rule and Vogel's Approximation method.
- (b) Kangan Resorts operates a lodging house with attached facilities of a shopping arcade and restaurant on a National Highway. The following details are available : 7
- The lodging house has 40 twin-bedded rooms, which are to be rented for Rs. 200 per night on double occupancy basis. The occupancy ratio is expected at 85% and always both the beds in the room will be occupied. The lodging facilities are operated, for 200 days in the year during foreign tourists season time only.
 - As per past record the spending pattern of each tourist staying in the lodge will be as under :
Rs. 50 per day in the shopping arcade and Rs. 80 per day in the restaurant.

(iii) Ratios of variable cost to respective sales volume are :

Shops	Restaurant
50%	60%

(iv) For the lodging house the variable cost on house-keeping and electricity will amount Rs. 30 per day per occupied room.

(v) Annual fixed overhead for the entire complex is estimated at Rs. 10,00,000.

Required :

- (i) Prepare an income statement for the next year.
- (ii) The Lodging House Manager suggests a proposal of reducing room rent to Rs. 150 per day on double occupancy basis, which will increase occupancy level to 95%. Should the proposal be accepted or not ?
- (c) What do you mean by a flexible budget ? Give an example of an industry where this type of budget is typically needed ? 2