Roll No...............................

Total No. of Questions—5]   [Total No. of Printed Pages—7

Time Allowed—3 Hours   Maximum Marks—100

HRM

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 answers in Hindi will not be valued.

Answer **all** the questions.

Working notes should form part of the answer.

Marks

1. (a) A company uses absorption costing system based on standard costs. The total   19
   variable manufacturing cost is Rs. 6 per unit. The standard production rate
   is 10 units per machine hour. Total budgeted and actual fixed production
   overhead costs are Rs. 8,40,000. Fixed production overhead is allocated at
   Rs. 14 per machine hour. Assume this same standard for the last year and
   current year.

   Selling price is Rs. 10 per unit.

   Variable selling overheads are Rs. 2 per unit and fixed selling costs are
   Rs. 2,40,000. Assume that there are no price, spending or efficiency variances.
   Beginning inventory was 30,000 units and ending inventory was 40,000 units.

   (i) Compute the break-even point under absorption costing, assuming that
   there will be an under absorption of overhead and that production variance
   is written off at year end as adjustment to cost of goods sold.

   (ii) Compute the break-even point under marginal costing.

   (iii) Assuming that sales were at break-even level computed under (ii) above,
   and that production variance is written off at the year end as adjustment
   to cost of goods sold, and that stock levels were as given above, find the
   profit under absorption costing. (detailed cost statement not essential)

HRM   P. T. O.

(b) A Project Manager has to manage various projects. For each project given below, you are required to advise him whether to use PERT or CPM and briefly state the reason :

    5

 (i) Project K is yet to begin. The manager has recently successfully handled similar projects. He is able to break down the project into smaller modules and knows when he may comfortably finish each module.

 (ii) Project L has been sanctioned some fixed amount. Though the manager is familiar about what time it will take, he expects pressure towards the end to finish the project slightly earlier, by deploying additional resources of the company.

 (iii) Project M is new to the manager. He has never handled such a project. He can break up the project into smaller modules, but even then, he is not sure of their exact times.

 (iv) Project N has a limitation on the skilled workforce available. But the manager knows from earlier experience, the slack on each event in the project. He is confident of handling the bottleneck of labour.

 (v) Project O is a research project, bound to produce immense benefit to the company in future.

2. (a) Spares Ltd. produces spare part 'X' for cars. The company has an annual production capacity of 1,80,000 units of X. However, the actual production is carried out according to the volume of order received. For the next year, the company has received an order for a value of Rs. 64,00,000. To meet the requirements of the order, the company has to work at 70% capacity for the first four months, 80% capacity for next six months, and 90% capacity for the remaining period of the year. Assume no opening or closing stocks.

    12

The following information is available :

Material cost is Rs. 15 per unit

Labour Rs. 12 per unit, subject to a minimum of Rs. 1,30,000 p.m.

Variable overheads Rs. 5 per unit

Fixed overheads Rs. 16,000 per month.

HRM Marks

Semi-variable overheads Rs. 75,000 per annum incurred upto 70% average annual capacity utilisation. Thereafter, it increases at Rs. 5,000 per annum for every 10% average annual capacity increase.

If the company targets a return of 27% on budgeted cost, should the order be accepted ? Justify your answer showing budgeted annual values for each element of cost for the next year.

(b) What are the benefits of a target costing system ? 3

(c) What is product life cycle costing ? What are its benefits ? 4

(a) A company produces two products, x_1 and x_2 with respective unit contributions 7 of Rs. 8 and Rs. 6.

Each product passes through machining operations in two machining centres, MI and MII, whose capacities are limited to 60 and 48 hours respectively with corresponding slack variables s_1 and s_2.

The following table gives the values for an interaction under the simplex method for maximising the contribution :

	x_1	x_2	s_1	s_2	
Basic Variables					
x_1	1	0	1/3	$-1/6$ ·	(MI constraint)
x_2	0	1	$-1/6$	1/3	(MII constraint)

You are required to :

(i) Evaluate if this iteration represents the optimal solution.

(ii) Find out what will be the optimum contribution.

(b) A hospital has to pay nurses for 40 hours a week. One nurse is assigned to 8 one patient. The cost per hour for each of the nurses is given below :

(i) Find the nurse-patient combination to minimise cost to the hospital.

(ii) How much does each nurse earn per week ?

Nurse \ Patient	W	X	Y
K	10	10	30
L	30	10	20
M	20	30	20

HRM P. T. O.

Suppose that a new patient Z is admitted, and that a new nurse N is appointed. The new patient is charged Rs. 40 per hour by each of the existing nurses. The new nurse charges Rs. 50 per hour irrespective of the patient.

(iii) What would be your revised calculations ?

(iv) Comment on the new solution.

(c) What is benchmarking ? What is the code of conduct suggested for ethical and effective benchmarking ?   4

4. (a) AB Ltd. has two divisions, A and B, making products A and B respectively. One unit of A is an input for each unit of B. B has production capacity of 45,000 units and ready market for 45,000 units in both the years 2010 and 2011. Other information available :

Division A	Year	
	2010	2011
Capacity (production units)	50,000	50,000
Maximum demand in usual external market (units)	25,000	30,000
Special order (units) (to be fully accepted or fully rejected)	10,000	15,000
Fixed cost Rs./annum upto 30,000 units	4,30,000	4,30,000
(Beyond 30,000 units, fixed cost increases by Rs. 1,00,000 for every additional 10,000 units for each year)		
Variable manufacturing cost Rs./unit	35	35
Variable selling cost Rs./unit (only for usual external sales)	10	10
Variable selling cost Rs./unit (only for special order and transfer to B)	5	5
Selling price (usual external market) Rs./unit	65	65
Selling price (only special order) Rs./unit	55	55

B buys input A from outside at a slightly incomplete stage at Rs. 30 per unit and incurs sub-contract charges at Rs. 20 per unit to complete it to a stage to match the output of Division A. In 2011, subcontract charges will increase to Rs. 30 per unit. B is willing to pay A, the price if incurs viz. Rs. 50 and Rs. 60 per unit in 2010 and 2011 respectively, provided A supplies B's full requirement. For any lesser quantity, (B will accept any quantity), B is willing to pay A only Rs. 45 and Rs. 55 per unit in 2010 and 2011 respectively. Assume no changes in inventory levels. In 2011, A may choose to avoid the variable selling overhead of Rs. 5 per unit on transfers to B or special order, by incurring a fixed overhead of Rs. 50,000 p.a. instead.

(i) What will be the maximum profits of A under its best strategy in 2011 ?   8

(ii) In view of the company's overall interest, calculate the customerwise units to be produced by A in 2010.   4

(iii) Assuming that A follows its best strategy between what values of transfer price will B be able to negotiate with A, so that A's best strategy is unchanged in 2011.   3

(b) In an unbalanced minimisation transportation problem, with positive unit transport costs from 3 factories to 4 destinations, it is necessary to introduce a dummy destination to make it a balanced transportation problem. How will you find out if a given solution is optimal ?   4

5. (a) X uses traditional standard costing system. The inspection and setup costs are actually Rs. 1,760 against a budget of Rs. 2,000.   6

ABC system is being implemented and accordingly, the number of batches is identified as the cost driver for inspection and setup costs. The budgeted production is 10,000 units in batches of 1,000 units, whereas actually, 8,800 units were produced in 11 batches.

(i) Find the volume and total fixed overhead variance under the traditional standard costing system.

(ii) Find the total fixed overhead cost variance under the ABC system.

(b) What is penetration pricing policy ? Why and when it is used ?   7

(c) With a view to improving the quality of customer services, a Bank is interested   6
in making an assessment of the waiting time of its customers coming to one
of its branches located in residential area. This branch has only one teller's
counter. The arrival rate of the customers and the service rate of the teller
are given below :

Time between two consecutive arrivals of customers (in minutes)	Probability
3	0.17
4	0.25
5	0.25
6	0.20
7	0.13

Service time by the teller (in minutes)	Probability
3	0.10
4	0.30
5	0.40
6	0.15
7	0.05

HRM

You are required to simulate 10 arrivals of customers in the system starting from 11 AM and show the waiting time of the customers and idle time of the teller. Use the following random numbers taking the first two random numbers in two digits each for first trial and so on :

11, 56, 23, 72, 94, 83, 83, 02, 97, 99, 83, 10, 93, 34, 33, 53, 49, 94, 37 and 97.