[A-2]

SARDAR PATEL UNIVERSITY
BBA (ITM) SEMESTER-IV EXAMINATION (NC) (2010 Batch)
THURSDAY, 19TH APRIL
2018
10.00 A.M. to 12.00 P.M.
UM04CBBI03: QUANTITATIVE TECHNIQUES FOR MANAGEMENT-II

Total Marks: 60

Q.1 **[A]** Distinguish correlation and regression. Write properties of regression coefficient. **[07]**

[B] Find mean of x and y, regression coefficient and correlation coefficient from the **[08]** equations of regression lines. Regression line y on x: $2y - x - 50 = 0$, Regression line x on y: $3y - 2x - 10 = 0$.

OR

Q.1 **[A]** Find appropriate line of regression to estimate y for $x = 80$ from the following. **[07]**

$$\bar{x} = 72, \qquad \bar{y} = 15, \qquad S_x = 12, \qquad S_y = 4, r = 0.66$$

[B] Given the following value of x and y. **[08]**

x:	2	4	5	7	6	8	10	12	15	16
y:	8	11	9	10	14	15	17	14	13	9

Find regression coefficients and Estimate value of x when $y = 20$.

Q.2 **[A]** Define Transportation and Assignment problem. Write its mathematical form. **[07]**

[B] Solve the following minimal assignment problem **[08]**

	I	II	III	IV
A	0	7	14	21
B	12	17	22	27
C	12	17	22	27
D	18	22	26	30

OR

Q.2 A furniture company has plants in cities A, B and C, which ship to four demand locations 1, 2, 3, 4 with transporting costs (in hundred rupees) as shown in following table. Determine minimum transportation cost by,

[i] North West corner Method **[7]**

[ii] Vogel's Approximation method. **[8]**

Supply plant	Demand location				
	I	II	III	IV	Capacity
P	19	30	50	10	7
Q	70	30	40	60	9
R	40	8	70	20	18
Requirement	5	8	7	14	34

(P.T.O.)

Q.3 **[A]** Define: (i) Predecessor activity, (ii) Successor activity [05]
(iii) Concurrent activity (iv) Dummy activity (v) Event

[B] Draw a network corresponding to the following information. Obtain the early and [10] late start and completion times, and determine the critical activities and critical path.

Activity	1-2	1-3	2-6	3-4	3-5	4-6	5-6	5-7	6-7
Duration	4	6	8	7	4	6	5	9	10

OR

Q.3 **[A]** What is PERT and CPM? Write rules of drawing network diagram? [05]

[B] A small maintenance project consists of the following 12 job.

Activity	Time in months	Activity	Time in months
1-2	2	5-8	5
2-3	7	6-7	8
2-4	3	6-10	4
3-4	3	7-9	4
3-5	5	8-10	1
4-6	3	9-10	7

Draw the network diagram and find,
i. EST, EFT, LST and LFT [03]
ii. Slacks [04]
iii. Critical path and project completion. [02]
[01]

Q.4 **[A]** What is inventory control? Explain ABC and VED approaches of inventory control. [07]

[B] A person supplies 100 units of an item on every Monday at Rs. 60 per unit. The cost [08] of ordering and transportation is Rs. 150 per order. The cost of carrying inventory is estimated per year at 15% of the cost of the product. Find the economic lot size and the optimum cost.

OR

Q.4 **[A]** Write advantages of carrying inventories. [04]

[B] A particular item has demand of 200 units per month. The ordering cost is Rs. 200 [05] per order and unit holding cost is Rs. 3.84 per unit par year. Determine (i) the economic lot size and (ii) the inventory cost.

[C] Annual demand of an item is 3200 units. The purchase cost of the item is Rs. 6 per [06] unit and its holding cost is 25% of the purchase cost per unit per year. If the ordering cost is Rs. 150 per order, find (i) EOQ (ii) optimum time interval between the orders.

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