

[6/A-6]

SEAT No. \_\_\_\_\_

No. of Printed Pages : 2

**SARDAR PATEL UNIVERSITY****MARCH - APRIL : 2018 EXAMINATION, BBA (ITM) (4 Years) SEMESTER : IV (NC)****MONDAY, 16/04/2018****MORNING SESSION TIME : 10.00 AM. TO 12.00 A.M.****SUBJECT CODE : UM04CBB101****QUANTITATIVE TECHNIQUES FOR MANAGEMENT - II****TOTAL MARKS : 60**

- Q-1 (A) Find the equation of regression lines from the following data and estimate the value of  $y$  when  $x = 32$ . [08]

X	21	22	23	24	25	26	27	28	29	30
Y	17	19	19	20	23	24	27	26	28	27

- Q-1 (B) Write the meaning of Regression. Write the properties of Regression coefficient and also write difference between correlation and regression lines. [07]

OR

- Q-1 (A) The regression lines are  $x+2y-5=0$  and  $2x+3y-8=0$  then find  $\bar{x}$ ,  $\bar{y}$ ,  $b_{xy}$ ,  $b_{yx}$ ,  $r$  and if  $S^2_x=12$  then find  $S^2_y$ . [08]

- Q-1 (B) From the following information obtain two regression line and estimate  $y$  when  $x=10$ . [07]

	X	Y
Mean	7.5	12.5
S.D.	4.5	9

 $r=0.9$ 

- Q-2 (A) Solve the following Transportation Problem using (1) NWCM (2) MM [10]

	I	II	III	IV	Supply
A	6	4	1	2	50
B	3	8	7	3	40
C	4	4	2	1	60
Demand	20	90	30	10	

- Q-2 (B) Solve the following Assignment problem to maximize the total profit. [05]

	A	B	C	D
P	3	4	11	9
Q	5	7	8	9
R	5	6	6	7
S	4	6	8	8

OR

- Q-2 (A) Write the mathematical formulation of transportation problem and solve the following T.P. by VAM. [08]

	P	Q	R	S	Supply
A	7	3	5	5	34
B	5	5	7	6	15
C	8	6	6	5	12
D	6	1	6	4	19
Demand	21	25	17	17	

[P.T.O.]

- Q-2 (B) Write the mathematical formulation of Assignment problem and solve the following A.P. [07]

	X	Y	Z	W
P	42	40	51	67
Q	57	42	63	58
R	49	52	48	61
S	41	45	60	55

- Q-3 (A) Define the terms : [05]  
 (1) Activity (2) Predecessor Activity (3) Successor Activity (4) Dummy Activity (5) Event.

- Q-3 (B) A project schedule has the following characteristics.

Activity	A	B	C	D	E	F	G	H	I
Predecessor	-	-	A	A	D	B,C	B,C	E,F	G
Time	4	2	1	4	5	2	1	3	4

- (1) Draw the network diagram. [03]  
 (2) Calculate EST, EFT, LST, LFT, for each activity. [04]  
 (3) Determine Critical Path [03]

OR

- Q-3 (A) Write the rules for network diagram [05]

- Q-3 (B) A Project schedule is as per follows.

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

- (1) Draw the network diagram. [03]  
 (2) Calculate EST, EFT, LST, LFT for each activity. [04]  
 (3) Determine Critical Path [03]

- Q-4 (A) Write the meaning and uses of inventory management. [05]

- Q-4 (B) A particular item has a demand of 250 units per month. The ordering cost is Rs. 100 per order and the unit holding cost is Rs. 2.40 per unit per year. [10]

Determine :

- (1) The economic lot size  
 (2) Total inventory cost per year.  
 (3) The time between orders.  
 (4) The number of orders per year.

OR

- Q-4 (A) Write brief note on ABC analysis and VED analysis. [06]

- Q-4 (B) A person supplies 100 units of an item on every Monday at Rs. 60 per unit. The cost 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. [09]

Determine :

- (1) The economic lot size  
 (2) Total Annual cost  
 (3) Time between order