

END TERM EXAMINATION

SECOND SEMESTER [BBA] NOVEMBER 2020

Paper Code: BBA-104

Subject: Quantitative Techniques

(Batch-2017 Onwards)

Time : 2 Hours

Maximum Marks : 75

Note: Attempt three questions including Question No. 1 which is compulsory. All questions carry equal marks.

- Q1 (a) The marks obtained by a set of students in an examination are given below:

Marks	5	10	15	20	25	30
No. of students	6	4	6	12	x	4

If the mean marks of the set is 18, find the value of x.

- (b) The marks obtained by a set of students in an examination are given below:

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70
No. of students	6	9	11	23	28	32	21
Marks	70-80	80-90	90-100				
No. of students	14	4	2				

Draw an Ogive curve for the above

- Q2 (a) The marks scored by 19 students in a test are given below:
31, 22, 36, 27, 25, 26, 33, 24, 37, 32, 29, 28, 36, 27, 35, 35, 32, 26, 28
Find (i) Median (ii) Lower Quartile (iii) Upper Quartile (iv) Inter Quartile Range (v) 23rd Percentile (P_{23})
- (b) What is mode? How is it computed? When do we say that mode is ill-defined? State its relationship with mean and median.

- Q3 Find Spearman's correlation coefficient from the following data.

Students	1	2	3	4	5	6	7	8	9	10
Marks in statistics	20	23	8	29	14	12	11	20	17	18
Marks in English	20	25	11	24	23	16	12	21	22	26

- Q4 Write short notes on following:

- Regression Lines.
- Standard Error of Regression.
- Coefficient of determination.
- Distinguish between correlation and regression coefficient.
- Scatter diagram.

- Q5 What is linear programming? State its assumptions. What are the applications of linear programming in business?

- Q6 Use the Simplex method to find the maximum value of

$$Z = 3x_1 + 2x_2 + x_3$$

Subject to

$$4x_1 + x_2 + x_3 = 30$$

$$2x_1 + 3x_2 + x_3 \leq 60$$

$$x_1 + 2x_2 + 3x_3 \leq 40$$

$$\text{where } x_1, x_2, x_3 \geq 0$$

P

1/2

P.T.O.

- Q7 (a) What is a transportation problem? Write mathematical form of transportation problem
 (b) What do you understand by initial basic feasible solution? Also give steps involved for Vogel's Approximation Method.

- Q8 A dairy plant has five milk tankers I, II, III, IV and V. These milk tankers are to be used on five delivery routes A, B, C, D and E. The distance (in kms) between dairy plant and delivery routes are given in the following distance matrix:

	I	II	III	IV	V
A	160	130	175	190	200
B	135	120	130	160	175
C	140	110	155	170	185
D	50	50	80	80	110
E	55	35	70	80	102

How the milk tankers should be assigned to routes so as to minimize the distance travelled?

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