

**END TERM EXAMINATION****SECOND SEMESTER [BBA] JUNE 2024****Paper Code: BBA-104****Subject: Decision Techniques for Business****Time: 3 Hours****Maximum Marks: 60****Note: Attempt all questions as directed. Internal choice is indicated.**

- Q1. Attempt **any four** of the following questions: (4x5 =20)
- Importance and Limitations of Statistics
  - Descriptive Statistics and Inferential Statistics
  - Types of Correlation with examples
  - Use of Bar Diagram and Pie Diagram
  - Exclusive and Inclusive Class Interval
  - Concept and Structure of Linear Programming Problem
  - Absolute and Relative Measures of Dispersion
- Q2. The following table gives the frequency distribution of expenditure on education per family per month among middle class families in two cities. Find the arithmetic mean and standard deviation of the expenditure of two cities. Which of the two cities show greater variability? (10)

| Expenditure<br>(in '000) | Number of families |        |
|--------------------------|--------------------|--------|
|                          | City A             | City B |
| 3-6                      | 28                 | 39     |
| 6-9                      | 292                | 284    |
| 9-12                     | 389                | 401    |
| 12-15                    | 212                | 202    |
| 15-18                    | 59                 | 48     |
| 18-21                    | 18                 | 21     |
| 21-24                    | 2                  | 5      |

**OR**

- Q3. A company has to assign four workers A, B, C and D to four jobs W, X, Y and Z. The cost matrix is given below: (10)

| JOBS→<br>Workers | W    | X    | Y   | Z    |
|------------------|------|------|-----|------|
| A                | 1000 | 1200 | 400 | 700  |
| B                | 600  | 500  | 300 | 800  |
| C                | 200  | 300  | 400 | 500  |
| D                | 600  | 700  | 300 | 1000 |

Suggest an optimal assignment schedule and the total cost pertaining thereto.

- Q4. Solve the following Linear Problem using Graphical Method. (10)  
 Maximise  $z = 3X + 2Y$   
 Subject to the restrictions:  
 $2X + Y \leq 40$   
 $X + Y \leq 24$   
 $2X + 3Y \leq 60$

**OR**

- Q5. Solve the following LPP using simplex method. (10)

Maximize  $Z = 40x_1 + 30x_2$   
 Subject to :  $x_1 + x_2 \leq 12$   
 $2x_1 + x_2 \leq 16$   
 $x_1 \geq 0; x_2 \geq 0$

- Q6. Determine the initial feasible solution for the following transportation problem using North-West Corner Method, Least Cost Method and Vogel's Approximation Method. Which of these methods give the least cost? (10)

| Plant         | Warehouse |    |    |    | Supply |
|---------------|-----------|----|----|----|--------|
|               | X         | Y  | z  | W  |        |
| A             | 3         | 2  | 5  | 2  | 15     |
| B             | 2         | 1  | 4  | 4  | 24     |
| C             | 2         | 3  | 4  | 3  | 21     |
| <b>Demand</b> | 13        | 12 | 16 | 19 | 60     |

OR

- Q7. Explain the transportation model. Discuss the three methods for finding initial basic feasible solution. (10)

- Q8. Calculate the Spearman's Rank Correlation for the following data. (10)

|             |    |    |    |    |    |    |    |   |    |
|-------------|----|----|----|----|----|----|----|---|----|
| Mathematics | 14 | 15 | 17 | 12 | 16 | 11 | 18 | 9 | 10 |
| Accountancy | 4  | 12 | 8  | 10 | 2  | 5  | 9  | 3 | 7  |

OR

- Q9. What do you mean by Regression? The following table gives the experience of machine operator (x) and their performance rating (Y) as given by the number of parts out of 100 pieces. Calculate the regression line of performance rating (Y) on Experience (X) and estimate the probable performance of operator who has 7 years of experience. (10)

|                         |    |    |    |    |    |    |    |    |
|-------------------------|----|----|----|----|----|----|----|----|
| Operator Experience (X) | 16 | 12 | 18 | 4  | 3  | 10 | 5  | 12 |
| Performance Rating (Y)  | 87 | 88 | 89 | 68 | 78 | 80 | 75 | 83 |

\*\*\*\*\*

<https://www.ggsipuonline.com>

Whatsapp @ 9300930012

Send your old paper & get 10/-

अपने पुराने पेपर्स भेजे और 10 रुपये पायें,

Paytm or Google Pay से

**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) 23<sup>rd</sup> 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:

- (a) Regression Lines.  
(b) Standard Error of Regression.  
(c) Coefficient of determination.  
(d) Distinguish between correlation and regression coefficient.  
(e) 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?

\*\*\*\*\*

<https://www.ggsipuonline.com>

Whatsapp @ 9300930012

Send your old paper & get 10/-

अपने पुराने पेपर्स भेजे और 10 रुपये पायें,

Paytm or Google Pay से