Total No. of Printed Pages: 4

**SUBJECT CODE NO: - X-3045**
**FACULTY OF COMMERCE & MANAGEMENT**
**B.Com F.Y (Sem-I)**
**Examination March / April - 2023**
**Business Mathematics & Statistics-I**

**[Time: 3:00 Hours]** **[Max. Marks: 80]**

Please check whether you have got the right question paper.

N. B
1. Q.No.1 is compulsory.
2. Solve any 4 questions from Q.2 to 7.
3. Use of log table and calculator is allowed.

Q1 A) Select the most appropriate answer from the alternative given below. (one mark each) 05

1) Statistics is applied in ----------
   a) Economic
   b) Business management
   c) Commerce and industry
   d) All of these

2) Median is ----------
   a) The most frequent value
   b) Middle most value
   c) Least frequent value
   d) Mean of first and last value

3) What is the coefficient of MD about Mean when Mean = 16 and deviation about mean is 4 ----------
   a) $\frac{4}{16} \times 100 = 25\%$
   b) $\frac{16}{4} \times 100 = 400\%$
   c) 20%
   d) None of these

4) Karl Pearson's co-efficient of skewness = ----------
   a) $\frac{3(M-\overline{X})}{\sigma}$
   b) $\frac{\overline{X}-Z}{\sigma} = \frac{3(\overline{X}-M)}{\sigma}$
   c) 3m-2x
   d) None of these

5) If $A = \begin{bmatrix} 4 & 1 \\ 3 & 6 \end{bmatrix}$ *and* $B = \begin{bmatrix} 7 & 2 \\ 4 & 5 \end{bmatrix}$ then $A + B =$ ----------

a) $\begin{bmatrix} 11 & 3 \\ 7 & 11 \end{bmatrix}$

b) $\begin{bmatrix} 10 & 12 \\ 4 & 6 \end{bmatrix}$

c) $\begin{bmatrix} 11 & 7 \\ 3 & 11 \end{bmatrix}$

d) $\begin{bmatrix} 5 & 7 \\ 9 & 6 \end{bmatrix}$

B) Write the answer to the following questions in one sentence? (one mark each) 05

1) Define statistics?
2) Define Median
3) What is mean by S.D.?
4) Define third order determinant.
5) What is column matrix?

C) Fill in the blanks and rewrite the sentences (one mark each) 05

1) ---------- is information collected directly from the first-hand experience.
2) When less than series is prepared all ---------- limits of class are considered.
3) A matrix containing only one row is called as ---------- matrix.
4) The value of the Pearsonian co-efficient of skewness cannot exceed the limit of ----------
5) Let $D = \begin{vmatrix} 2 & 4 \\ 3 & 7 \end{vmatrix}$ $\therefore D =$ ----------

D) State whether the following statements are true or false. (one mark each) 05

1) $(A + B) + C = A + (B + C)$ is a rule of Associative
2) If $D = \begin{vmatrix} 2 & x \\ -4 & 3 \end{vmatrix} = 0$, then the value of $= -\frac{2}{3}$
3) National Income data is not statistics.
4) Negative skewed distribution have tail on the left hand size ----------
5) The word "statistics" has been derived from the Latin word "Status" which means a political state.

Q2 Calculate Mean, Median and Mode from the following data. 15

| Weekly wages (in Rs.) | No of worker's |
|---|---|
| 0-10 | 14 |
| 10-20 | 15 |
| 20-30 | 23 |
| 30-40 | 30 |
| 40-50 | 32 |
| 50-60 | 21 |
| 60-70 | 18 |
| 70-80 | 7 |

Q3 From the following data calculate standard deviation and it's co-efficient. 15

| Monthly Rent (in Rs.) | No of Families |
|---|---|
| 0-400 | 3 |
| 400-800 | 5 |
| 800-1200 | 9 |
| 1200-1600 | 13 |
| 1600-2000 | 16 |
| 2000-2400 | 22 |
| 2400-2800 | 18 |
| 2800-3200 | 14 |

Q4 Find the value of X: 15

If $\begin{vmatrix} 8 & 3 & -2 \\ 5 & 6 & X \\ 18 & 15 & 10 \end{vmatrix} = 0$

Q5 Find the value of following matrices as directed: 15

If $A = \begin{bmatrix} 1 & 2 & -3 \\ 4 & -5 & 6 \\ 7 & 8 & -9 \end{bmatrix}$ $B = \begin{bmatrix} 4 & -3 & 2 \\ 1 & 6 & -4 \\ -7 & 1 & 3 \end{bmatrix}$ $and\ C = \begin{bmatrix} 6 & 2 & 1 \\ 4 & 0 & 7 \\ 2 & 1 & 6 \end{bmatrix}$

Show that :

(i) $A + B = B + A$

(ii) $A + (B + C) = (A + B) + C$

Q6 Calculate Karl Pearson's co-efficient of skewness from the following data: 15

| Marks in Accountancy (out of 100) | No of students |
|---|---|
| 0-10 | 5 |
| 10-20 | 15 |
| 20-30 | 20 |
| 30-40 | 30 |
| 40-50 | 15 |
| 50-60 | 10 |
| 60-70 | 5 |

Q7 Write short notes (any three) 15

1) Importance of statistics?
2) Limitation of statistics?
3) Define matrix?
4) Merits and demerits of mean, median and mode?
5) Explain the method of collecting primary data?