BCOC-134

BACHELOR OF COMMERCE (BCOMOL)

BUSINESS MATHEMATICS AND STATISTICS

Time : Three Hours

Maximum Marks : 100

Note : Attempt all the three Sections. Use of calculator is allowed.

Section-I (Short Answer Type Questions) (5×4=20)

Attempt any five of the following questions.

1. 4 matrices a, b, c and d are given below. Mention the type of matrices of each matrix with reason:

a) $\begin{bmatrix} -3 & 0 & 1 \end{bmatrix}$

b) $\begin{bmatrix} -2 \\ 0 \\ 2 \\ 1 \end{bmatrix}$

c) $\begin{bmatrix} 3 & 7 & 9 \\ 4 & 6 & 9 \end{bmatrix}$

d) $\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & -3 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 2 \end{bmatrix}$

2. What is minor of an element of a determinant? Explain with example.

3. What are the assumptions of input-output analysis?

4. Explain composite function with the help of an example.

5. Write down the properties of limit.

6. Explain descriptive and inferential statistics.

7. What do you mean by variables? What is univariate and bivariate frequency distribution?

Section-II (Medium Answer Type Questions) (5×10=50)

Attempt any five of the following questions.

8. Calculate the arithmetic mean of the marks for the following data:

Marks	:	10	20	30	40	50	60	70	80
No. of Students	:	8	21	23	17	15	9	5	2

9. Compute mean, median and mode from the following series:

x : 6, 7, 4, 8, 11, 5, 3, 9, 10

10. Why do we measure dispersion? What are the properties of a good measure?

11. Explain the characteristics of Index Number.

12. If $A = \begin{bmatrix} 0 & 2 & 3 \\ 2 & 1 & 4 \end{bmatrix}$ and $B = \begin{bmatrix} 7 & 3 & 5 \\ 5 & -1 & -3 \end{bmatrix}$, find out A + B.

13. Explain differentiation of implicit functions with suitable example.

14. Explain income and cross elasticity of demand with example.

Section-III (Long Answer Type Questions) (2×15=30)

Attempt any two of the following questions.

15. A man purchased a house valued at Rs. 3,00,000. He paid Rs. 2,00,000 at the time of purchase and agreed to pay the balance with interest of 12% p.a. compounded half yearly in 20 equal half yearly instalments. If the first instalment is paid after 6 months from the date of purchase, find the amount of each instalment.

16. Calculate Karl Pearson's coefficient of correlation from the advertisement cost and sales as per the data given below:

Advt. Cost (Rs. in '000) :	39	65	62	90	82	75	25	98	36	78
Sales (Rs. in lakh) :	47	53	58	86	62	68	60	91	51	84

17. Describe functions of statistics with suitable example.