

D 51697

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Name.....

Reg. No.....

**THIRD SEMESTER (CBCSS—UG) DEGREE EXAMINATION  
NOVEMBER 2023**

Common Course [B.Sc. LRP (Alternate Pattern)]

A11—BASIC NUMERICAL SKILLS

(2019—2022 Admissions)

Time : Two Hours and a Half

Maximum : 80 Marks

**Section A (Short Answer Type)**

*All questions can be attended.*

*Each question carries 2 marks.*

*(Ceiling 25 marks)*

1. Using De Morgan's law write  $(A \cup B)^C$ .
2. If  $A = \{1, 2, 3\}$ ,  $B = \{3, 4\}$  then find  $A \cup B$  and  $A \cap B$ .
3. If  $A = \begin{bmatrix} 1 & 2 \\ 2 & 3 \end{bmatrix}$ ,  $B = \begin{bmatrix} 3 & -1 \\ -2 & 1 \end{bmatrix}$ , then find  $A + B$  and  $A - B$ .
4. If  $A = \begin{bmatrix} a & 4 \\ 3 & 4 \end{bmatrix}$  is singular then find  $a$ .
5. If  $3x + 4y = 16$ ,  $y = 1$  then find the value of  $x$ .
6. Solve  $x^2 - 9 = 0$ .
7. Find the common difference of the arithmetic progression 2, 10, 18, ...
8. Find the sixth term of the geometric progression  $1, \frac{1}{2}, \frac{1}{2^2}, \dots$
9. If the simple interest on Rs. 8,000 for two years is 2,000, then find the rate of interest.

**Turn over**

10. Write any *two* limitations of statistics.
11. Define Frequency.
12. Give examples of 2 diagrams which are used to represent statistical data.
13. Give examples of 2 index numbers.
14. Explain Skewness
15. Define Range.

**Section B (Paragraph/Problem Type)**

*All questions can be answered.*

*Each question carries 5 marks.*

*(Ceiling 35 marks)*

16. Find X and Y if  $X + Y = \begin{bmatrix} 7 & 0 \\ 2 & 5 \end{bmatrix}$ ,  $X - Y = \begin{bmatrix} 5 & 0 \\ 0 & 5 \end{bmatrix}$ .
17. If  $A = \begin{bmatrix} 1 & 1 \\ 0 & 2 \end{bmatrix}$  and  $B = \begin{bmatrix} 1 & 0 \\ 1 & 5 \end{bmatrix}$  the find AB and BA. Are they equal ?
18. Find  $2 + 5 + \dots + 182$ .
19. If  $A = \{a, b, d, e\}$ ,  $B = \{b, c, e, f\}$ ,  $C = \{d, e, f\}$ , then verify whether the expression  $A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$  is true.
20. The marks out of 20 obtained by 20 students in a test are given below. Find the mean marks :

Marks	:	20	15	18	10	12
No. of Students	:	6	4	2	3	5
21. Write a short note on Quartile deviation and Mean deviation.
22. Write a short note on measures of central tendency.
23. An arithmetic progression has 3 as first term. Also the sum of first 8 terms is twice the sum of first 5 terms. Find the common difference.

**Section C (Essay Type)**

Answer any **two** of the following questions.

Each question carries 10 marks.

24. Solve  $3x - 4y + 8z = 26$   
 $6x - 3y - 5z = 1$   
 $-x + y + 3z = 11.$

25. Find adjoint of  $A = \begin{bmatrix} 1 & -1 & 2 \\ 2 & 3 & 5 \\ -2 & 0 & 1 \end{bmatrix}$ .

26. Find standard deviation from the following table :

Wages	Number of persons
140–160	12
160–180	18
180–200	35
200–220	42
220–240	50
240–260	45
260–280	20
280–300	8

27. If the sum of three numbers of an arithmetic progression is 30 and their product 990, then find the numbers.

(2 × 10 = 20 marks)