D 11981 (Pages : 3) Name.....

Reg. No.....

THIRD SEMESTER (CBCSS—UG) DEGREE EXAMINATION NOVEMBER 2021

Common Course [B.Sc. L R P (Alternate Pattern)]

A11—BASIC NUMERICAL METHODS

(2019—2020 Admissions)

Time : Two Hours and a Half Maximum : 80 Marks

Section A

Answer at least **ten** *questions.*

Each question carries 3 *marks.*

All questions can be attended.

Overall Ceiling 30.

1. What is Linear Equation ?
2. What is meant by quadratic equation ?
3. What is matrix ?
4. What is diagonal matrix ?
5. How do you calculate the sum of two matrices ?
6. What is Geometric Progression ?
7. What do you mean by series ?
8. What is real interest rate ?
9. Define EMI ?
10. Define harmonic mean ?
11. State any *two* desirable properties of a good average.
12. What do you mean by dispersion ?
13. Define standard deviation.

Turn over

14. State any *two* limitations of mean deviation.

15. What is kurtosis ?

(10 × 3 = 30 marks)

Section B

Answer at least **five** *questions.*

Each question carries 6 *marks.*

All questions can be attended.

Overall Ceiling 30.

16. Solve $19x + 3x + 21 - 10x = 81$.

17. Solve the equation $x^2 + 5x - 14 = 0$.

18. Find the determinant of $A = \begin{bmatrix} 1 & 2 & 3 \\ 0 & 4 & 3 \\ 6 & 1 & 2 \end{bmatrix}$.

19. Find the 14^{th} term of Arithmetic progression : 1, 3, 5 ———.

20. Three numbers in ascending order in geometric progression such that their product is 1000. Find the middle number.

21. Calculate simple interest and amount at end of the 3^{rd} year for Rs. 20,000 at 10 % per annum

22. Calculate Arithmetic mean from the following data :

Values	:	1	2	3	4	5	6	7	8
Frequency	:	3	5	6	11	9	6	5	3

23. Calculate median from the following :

31, 14, 25, 18, 17, 26, 27, 23, 22.

(5 × 6 = 30 marks)

Section C

Answer any **two** *questions.*

Each question carries 10 *marks.*

24. Solve the following equations by using Cramer's rule :

$2x + 5y = 18$

$3x + 2y = 16.$

25. Find compound interest for Rs. 8,000 for 3 years if interest is payable half yearly at 6 % P.a.

26. Find the 7^{th} term and 10^{th} term of the geometric progression 2, 4, 8.

27. Calculate Standard deviation and co-efficient of variation from the following values

Size	:	1	2	3	4	5	6	7	8
Frequency	:	1	3	4	6	9	7	3	2

(2 × 10 = 20 marks)