D 11983 **(Pages : 3)** **Name.....**

Reg. No.....

THIRD SEMESTER (CBCSS—UG) DEGREE EXAMINATION
NOVEMBER 2021

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

A11—BASIC NUMERICAL SKILLS

(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 power set ?
2. Find the power set of $A = \{1, 2, 3\}$.
3. what are the methods used for measuring seasonal variations ?
4. Represent the following frequency table by histogram :

Marks	:	10–15	15–20	20–25	25–30	30–35
Number of students	:	5	20	50	40	10

5. What is analysis of time series ?
6. Find the product of first five terms of GP, if the third term is 3.
7. What do you understand by classification of data ?
8. Solve $x^2 - 7x + 6 = 0$ by using quadratic formula.
9. Explain Kurtosis.
10. Find the product of first 9 terms of GP, if the 5^{th} term is 2.
11. Find the mean of the following data.

    4, 40, 60, 20, 80, 10, 26, 12, 24, 12, 50

Turn over

12. Explain Skewness.

13. What is a pie diagram ?

14. Find the value of the determinant $\begin{vmatrix} 1 & 0 & 0 \\ 4 & 4 & 2 \\ 2 & 1 & 3 \end{vmatrix}$.

15. What is an index number ?

(10 × 3 = 30 marks)

Section B (Paragraph)

Answer at least **five** *questions.*
Each question carries 6 *marks.*
All questions can be attended.
Overall Ceiling 30.

16. If the fifth and the tenth terms of a G.P are 32 and 1024 respectively, find the first term and the common ratio.

17. Give 3 yearly moving averages for the following series :

Year	:	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Production (lakh tons)	:	12.2	12.3	13.7	14.9	13.2	11.3	15.1	15.2	15.3	14.9

18. Find the sum of first 20 terms of the sequence 3, 6, 9, 12,....

19. Find the adjoint of the matrix $\begin{bmatrix} 1 & 1 & 2 \\ 0 & 1 & 3 \\ 0 & 0 & 1 \end{bmatrix}$.

20. Find the central tendencies for given series :

28, 36, 34, 28, 48, 22, 35, 27, 19,41

21. Find AB, where $A = \begin{bmatrix} 1 & 2 \\ 0 & 1 \end{bmatrix}$ and $B = \begin{bmatrix} 0 & 1 \\ 3 & 1 \end{bmatrix}$.

22. If $A = \{1, 2\}$ and $B = \{a, b, c\}$, find A × B and B × A. Are they equal ?

23. What are the different aspects to be considered in planning a statistical enquiry ?

(5 × 6 = 30 marks)

Section C (Essay)

Answer any **two** *questions.*
Each question carries 10 *marks.*

24. Find the sum of n terms of the series 8 + 88 + 888 + 8888 + ...

25. Find the inverse of the matrix $\begin{bmatrix} 1 & 1 & 2 \\ 0 & 2 & 3 \\ 0 & 0 & 1 \end{bmatrix}$.

26. Solve the following by matrix method :

$$2x + 3y + 3z = 5$$
$$x - 2y + z = -4$$
$$3x - y - 2z = 3.$$

27. Find the quartile deviation for the following data :

Marks	Frequency
20–30	4
30–40	12
40–50	18
50–60	28
60–70	19
70–80	14
80–90	5

(2 × 10 = 20 marks)