

D 92910–B

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Name.....

Reg. No.....

**THIRD SEMESTER B.A./B.Sc. (CBCSS—UG) DEGREE EXAMINATION  
NOVEMBER 2020**

Common Course

A11—BASIC NUMERICAL SKILLS

(2019 Admissions)

Time : Two Hours and a Half

Maximum : 80 Marks

**Section A (Short Answers)**

*Answer at least ten questions.*

*Each question carries 3 marks.*

*All questions can be attended.*

*Overall Ceiling 30.*

1. The sum of three numbers in AP is  $-3$  and their product is 8. Find the numbers.
2. What is an index number ?
3. Find the power set of  $A = \{a, b, c\}$ .

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

5. Differentiate between discrete and continuous frequency distributions ?
6. Explain Kurtosis.
7. What do you understand by classification of data ?
8. Find the mean of the following data :  
4, 45, 60, 20, 83, 19, 26, 11, 27, 12, 52.
9. If the 8<sup>th</sup> term of an AP is zero, prove that its 28<sup>th</sup> term is double the 18<sup>th</sup> term.
10. What is analysis of time series
11. Solve  $x^2 - 5x + 4 = 0$  by using quadratic formula.
12. Differentiate Geometric and Harmonic Mean.

Turn over

13. What is a pie diagram ?  
 14. Explain Skewness.  
 15. Represent the following frequency table by histogram.

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

(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. Find the sum of first 22 terms of the sequence 5, 10, 15, 20, \_\_\_\_\_.

17. Find the central tendencies for the given series :

3, 9, 3, 5, 12, 10, 18, 4, 7, 19, 21.

18. If  $A = \{1, 2, 3\}$  and  $B = \{a, b\}$ , find  $A \times B$  and  $B \times A$ . Are they equal ?

19. Find  $AB$ , Where  $A = \begin{bmatrix} 1 & 2 \\ 2 & 1 \end{bmatrix}$  and  $B = \begin{bmatrix} 2 & 1 \\ 1 & 1 \end{bmatrix}$ .

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

21. Give three yearly moving averages for the following series :

Year	:	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
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Production (lakh tons)	:	17.2	17.3	17.7	18.9	19.2	19.3	18.1	20.2	25.3	24.9
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22. Find the sum of first 10 terms of GP, whose 3<sup>rd</sup> term is 12 and 8<sup>th</sup> term is 384.

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

(5 × 6 = 30 marks)

**Section C (Essay)**

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

24. Explain :

- (a) Arithmetic, Geometric and Harmonic mean.
- (b) Scope of statistics.

25. Find the quartile deviation for the following data :

<i>Marks</i>		<i>Frequency</i>
0 – 5	...	4
5 – 10	...	5
10 – 15	...	6
15 – 20	...	10
20 – 25	...	11
25 – 30	...	9
30 – 35	...	4
35 – 40	...	1

26. Find the sum of n terms of the series  $5 + 55 + 555 + 5555 + \dots$

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

(2 × 10 = 20 marks)