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Name...................................

Reg. No..............................

THIRD SEMESTER (CBCSS—UG) DEGREE EXAMINATION
NOVEMBER 2020

B.Com./B.B.A.

A 11—BASIC NUMERICAL METHODS

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 weighted arithmetic mean ?

2. What is real rate of interest ?

3. What is present value ?

4. What do you mean by symmetric distribution ?

5. What is a sinking fund ?

6. What do you mean by annuity certain ?

7. Calculate mean : 3, 7, 5, 13, 20, 23, 39, 23, 40, 23, 14, 12, 56, 23, 29

8. Define 'Median'.

9. Define 'Arithmetic Progression'.

10. What do you mean by open-end classes ?

11. What is Skewness ?

12. Find the next number in the following sequence : 1, 4, 27, 256, x.

13. What is variance ?

Section B

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

16. Solve the quadratic equation $2x^2 + x - 528 = 0,$ using quadratic formula.

17. A sum of money at simple interest amounts to Rs. 815 in 3 years and to Rs. 854 in 4 years. Find the principal amount.

18. What is the transpose of the matrix $\begin{pmatrix} 2 & -5 & 6 \\ -1 & 2 & -4 \\ -3 & -1 & 0 \end{pmatrix}$?

19. What is Standard Deviation ? What are its merits and demerits ?

20. An A.P. consists of 50 terms of which 3rd term is 12 and last term is 106. Find the 29th term.

21. Calculate the present value of an annuity due of PLs 5,000 per annum for 15 years at an interest at 8% p.a.

22. If the harmonic mean between $x + 1$ and 5 is 3, find x.

23. Arun borrowed Rs. 12,500 at 12 % per annum for 3 years at simple interest and Binil borrowed the same amount for the same period at 10% per annum, compounded annually. Who pays more interest and by how much ?

$(5 \times 6 = 30$ marks$)$

Section C

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

24. Define 'Matrix". Explain various types of matrices with suitable examples.

25. If the supply function for a commodity is $p = q^2 + 8q + 16$ and the demand function is $p = -3q^2 + 6q + 436,$ find the equilibrium quantity and equilibrium price.

26. Calculate the standard deviation and coefficient of variation for the following distribution :

Marks	:	10	20	30	40	50
Number of students	:	4	3	6	5	2

27. Find the mean, median and mode of the following data :

Classes	:	0–20	20–40	40–60	60–80	80–100	100–120	120–140
Frequency	:	6	8	10	12	6	5	3

$(2 \times 10 = 20$ marks$)$