D 111871 (Pages : 2) Name.......................................

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

THIRD SEMESTER (CBCSS-UG) DEGREE EXAMINATION, NOVEMBER 2024

(B.Com/BBA)

Common Course — A11—BASIC NUMERICAL METHODS

(2019—2023 Admissions)

Time : Two Hours and a Half Maximum : 80 Marks

Section A

All *questions can be attended.*
Each questions carries 2 *marks.*

1. Define Statistics.

2. What is meant by Triangular matrix ?

3. What is a linear equation ?

4. What is meant by annuity ?

5. What is a Quadratic equation ?

6. What do you mean by discrete and continuous series ?

7. What do you mean by Standard Deviation ?

8. Find compound interest on Rs. 25,200 for 2 years at 10 % p.a. compounded annually.

9. What do you mean by a sequence ?

10. What is weighted arithmetic mean ?

11. What is meant by Positive and Negative skewness ?

12. Complete the pattern : 1, 9, 17, 25, 33, ————.

13. Calculate the range and coefficient of range from the following data :

    4, 7, 8, 46, 53, 77, 8, 1, 5, 13.

14. Calculate median : 25, 35, 15, 18, 17, 36, 28, 24, 22, 26.

15. What do you mean by the time value of money ?

$(15 \times 2 = 30 \text{ marks})$
Max. Ceiling : 25 marks

Section B

All *questions can be attended.*
Each questions carries 5 *marks.*

16. Find the value of standard deviation and coefficient of variation from the following :

Variables	10	20	30	40	50	60	70
Frequency	6	8	16	15	32	11	12

Turn over

17. A sum of Rs. 1,750 is divided into two parts such that the interests on the first part at 8 % simple interest per annum and that on the other part at 6 % simple interest per annum are equal. What is the interest accumulated on each part ?

18. List out the merits and demerits of Standard deviation.

19. If the Harmonic mean between $x + 1$ and 5 is 3, find x.

20. What do you mean by compound interest ? How is it different from simple interest ?

21. If the first, second and last terms of the AP are 5, 9 and 101 respectively, find the total number of terms in the AP.

22. Solve $4(x - 2) + 5(x - 3) - 25 = x + 8$.

23. If $3A - B = \begin{bmatrix} 5 & 0 \\ 1 & 1 \end{bmatrix}$ and $B = \begin{bmatrix} 4 & 3 \\ 2 & 5 \end{bmatrix}$ then find the value of matrix A.

(8 × 5 = 40 marks)
Max. Ceiling : 35 marks

Section C

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

24. What do you mean by sequence and series ? List out the differences between Sequence and Series. What are the types of sequene and series ?

25. Solve the following system of equations by using Cramer's rule :

$$
\begin{aligned}
2x &+ y &- z &= 0 \\
x &- y &+ z &= 0 \\
x &+ 2y &+ z &= 3
\end{aligned}
$$

26. 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 :	24	32	40	48	24	20	12

27. Solve :

$$
\frac{7x + 1}{7x + 5} = \frac{3x - 1}{5x - 1}.
$$

(2 × 10 = 20 marks)

D 111871-A (Pages : 4) Name......................................

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THIRD SEMESTER (CBCSS-UG) DEGREE EXAMINATION, NOVEMBER 2024

(B.Com/BBA)

Common Course—A11—BASIC NUMERICAL METHODS

(2019—2023 Admissions)

(Multiple Choice Questions for SDE Candidates)

| Time : 15 Minutes | Total No. of Questions : 20 | Maximum : 20 Marks |

INSTRUCTIONS TO THE CANDIDATE

1. This Question Paper carries Multiple Choice Questions from 1 to 20.

2. The candidate should check that the question paper supplied to him/her contains all the 20 questions in serial order.

3. Each question is provided with choices (A), (B), (C) and (D) having one correct answer. Choose the correct answer and enter it in the main answer-book.

4. The MCQ question paper will be supplied after the completion of the descriptive examination.

Common Core—A11—BASIC NUMERICAL METHODS

(Multiple Choice Questions for SDE Candidates)

1. One quadratic equation $ax^2 + bx + c = 0$ has equal roots if :

    (A) $b^2 - 4ac < 0.$ (B) $b^2 - 4ac > 0.$

    (C) $b^2 - 4ac = 0.$ (D) $b^2 - 4ac = 1.$

2. One roots of the equation $3x^2 - 1 = 0$ are ————.

    (A) Irrational.   (B) Imaginary.

    (C) Rational.   (D) Integers.

3. One common ratio of the G.P. $1, \dfrac{1}{3}, \dfrac{1}{9}, \dfrac{1}{27}$ ———— is.

    (A) 3.   (B) $\dfrac{1}{3}.$

    (C) $\dfrac{1}{6}.$ (D) 6.

4. Find x if the number x, 7, 28 from a G.P. :

    (A) 4.   (B) 0.

    (C) $\dfrac{7}{4}.$ (D) $\dfrac{4}{7}.$

5. Find the tenth term of the series $4, 2, 0, -2$:

    (A) $-12.$ (B) $-10.$

    (C) $-8.$ (D) $-14.$

6. Simple interest for a sum of ₹ 1,000 for 4 years at the rate of interest 10 % p.a. :

    (A) 1400.   (B) 100.

    (C) 400.   (D) None.

7. Statistics does not study :

    (A) Individuals.   (B) Groups.

    (C) Aggregates.   (D) All of these.

8. The classification 10–19, 20–29, 30–39 is the example of :

    (A) Exclusive.   (B) Inclusive.

    (C) Both.   (D) None.

9. Histogram is a —————.

    (A) Diagram.   (B) Graph.

    (C) Pictogram.   (D) Cartogram.

10. For open end classes, one best measure of central tendency is :

    (A) A.M.   (B) Median.

    (C) Mode.   (D) G.M.

11. Which is the best measure of dispersion ?

    (A) S.D.   (B) Range.

    (C) Variance.   (D) C.V.

12. Lorenz Curve is used to study :

    (A) Skewness.   (B) Kurtosis.

    (C) Correlation.   (D) Dispersion.

13. Which measure ensures highest degree of reliability :

    (A) Range.   (B) MD.

    (C) SD.   (D) QD.

14. ————— is the reciprocal of the AM of reciprocal of observations.

    (A) HM.   (B) GM.

    (C) AM.   (D) None.

15. Pie diagram are ————— dimensional diagrams.

    (A) One.   (B) Two.

    (C) Three.   (D) Four.

16. ————— is the proper scruting of the collected data to avoid various types of errors.

    (A) Tabulation.   (B) Classification.

    (C) Editing.   (D) None.

17. Collection of ————— data involves large expenses.

    (A) Primary.   (B) Secondary.

    (C) Primary or secondary.   (D) All.

Turn over

18. When the upper limit of a class is the lower limit of the next class, the series is known as :

    (A) Individual.   (B) Discrete.

    (C) Inclusive.   (D) Exclusive.

19. The process of arranging data in group according to similarities is called :

    (A) Tabulation.   (B) Classification.

    (C) Tabulation or classification.   (D) None.

20. Frequency distribution is ————.

    (A) Variable.   (B) Frequency.

    (C) Class interval.   (D) Table.