Name...

Reg. No..

THIRD SEMESTER (CUCBCSS—UG) DEGREE EXAMINATION NOVEMBER 2020

B.Com. (2014—2016 Admissions)/B.B.A. (2014—2018 Admissions)

BCM 3A 11—BASIC NUMERICAL SKILLS

Time : Three Hours

Maximum : 80 Marks

Part I

Answer **all** *questions.*
Each question carries 1 mark.

I. Choose the correct answer :

1 The measure of dispersion based on all the observations of the series is :

    a) Range.

    b) Quartile deviation.

    c) Standard deviation.

    d) Inter quartile range.

2 A matrix with a single column is called a :

    a) Column matrix.

    b) Zero matrix.

    c) Identity matrix.

    d) Row matrix.

3 A statement of equality of two expressions is known as :

    a) Equation.

    b) Association.

    c) Co-efficient.

    d) Equality.

4 Sequence of numbers whose terms increase or decrease by a 'constant ratio' is called :

    a) Permutation.

    b) Geometric Progression.

    c) Common ratio.

    d) Arithmetic progression.

5 The weight used in Paasche's formula belongs to :

    a) Current period.

    b) Base period.

    c) Any arbitrary chosen period.

    d) None.

Turn over

II. Fill in the blanks :

6　The equation of the first degree is called ――――――.

7　A^{-1} means ――――――.

8　Index numbers shows ―――――― changes rather than absolute changes.

9　―――――― is the value of the variable corresponding to the highest frequency.

10　The midpoint of a class is ――――――.

(10 × 1 = 10 marks)

Part II

*Answer any **eight** questions.*
Each question carries 2 marks.

11　What is complex numbers ?

12　Define Polynomials.

13　If $A = \{1, 4, 7, 10\}$, $B = \{2, 4, 5, 8\}$, $U = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$ find $A \cap B$.

14　Insert 5 Geometric Means between 2 and 31, 250.

15　Rs. 10,000 for 3 years @ 15 % p.a. Calculate the simple interest and amount for the investment.

16　What is Triangular Matrix ?

17　Find Range :

Wage	:	10	15	18	20	25
No. of Employer	:	3	5	12	8	6

18　Which term of the A.P. 49, 44, 39,....9 ?

19　Calculate determinant of $A = \begin{pmatrix} 2 & 7 \\ 5 & 3 \end{pmatrix}$.

20　Find the 15th term of the series 3, – 6, 12, – 24........

(8 × 2 = 16 marks)

Part III

Answer any **six** *questions in about* 200 *words.*

Each question carries 4 marks.

21. What is Graph ? What are the uses of graphs ?

22. Solve : $\begin{aligned} x^2 - y^2 &= 20 \\ x + y &= 10. \end{aligned}$

23. Find the sum to n terms of the series $6 + 66 + 666 + \ldots\ldots n$ terms.

24. A person borrows Rs. 10,000 at 10 % simple interest and lends it out at the same rate of compound interest. What is his net earnings in 4 years ?

25. Calculate determinant of the matrix,

$$A = \begin{bmatrix} 2 & 7 & 3 \\ 6 & 4 & 8 \\ 1 & 2 & 5 \end{bmatrix}.$$

26 From the following distribution find the harmonic mean :

x	:	15	237	1345	45678	0.5	0.015	.00237
f	:	7	6	5	4	3	2	1

27. Calculate simple index number by average relative method :

Items	:	1	2	3	4	5
Price in base year	:	5	10	15	20	8
Price in current year	:	7	12	25	18	9

28. What is Price Index Numbers and what are the methods used for the construction of price index numbers ?

$(6 \times 4 = 24 \text{ marks})$

Turn over

Part IV (Essay Questions)

Answer any **two** *questions.*
Each question carries 15 marks.

29 If $A = \begin{bmatrix} 1 & 5 & 2 \\ 3 & -2 & 4 \\ 6 & 2 & 1 \end{bmatrix}$, find the inverse of A.

30 The marks of two students A and B during a examination are as follows. Examine who is more consistent in marks, who is more efficient ?

Student A	:	10	12	80	70	60	100	0	4
Student B	:	8	9	7	10	5	9	10	8

31 Explain the different stages in a statistical enquiry.

(2 × 15 = 30 marks)