

## THIRD SEMESTER B.Com./B.B.A. DEGREE EXAMINATION, NOVEMBER 2019

(CUCBCSS—UG)

B.Com./B.B.A.

BCM 3A 11—BASIC NUMERICAL SKILLS

(2017 Admissions)

Time : Three Hours

Maximum : 80 Marks

## Part A

Answer all questions.

Each question carries 1 mark.

I. Choose the correct answer :

1 If the fifth term of a GP is 81 and second term is 24, find the GP :

(a) 16, 24, 36, 54,.....

(b) 12, 24, 36, 48,.....

(c) 8, 16, 32, 64,.....

(d) 9, 27, 81,.....

2 Transpose of is :

(a) 
$$\begin{bmatrix} 1 & 2 & 3 & 4 \\ 2 & 3 & 4 & 1 \\ 3 & 4 & 2 & 1 \end{bmatrix}$$

(b) 
$$\begin{bmatrix} 1 & 2 & 3 \\ 2 & 3 & 4 \\ 3 & 4 & 2 \\ 4 & 1 & 1 \end{bmatrix}$$

(c) 
$$\begin{bmatrix} -1 & -2 & -3 \\ -2 & -3 & -4 \\ -3 & -4 & -2 \\ -4 & -1 & -1 \end{bmatrix}$$

(d) 
$$\begin{bmatrix} -1 & -2 & -3 & -4 \\ -2 & -3 & -4 & -1 \\ -3 & -4 & -2 & -1 \end{bmatrix}$$

3 If  $A = \{1, 3, 5, 7, 9, 11, 13, 15\}$ ,  $B = \{5, 9, 13, 17, 21\}$  and  $C = \{1, 3, 9, 13, 17, 21\}$   $A \cap B =$  —(a)  $\{5, 9, 13\}$ .(b)  $\{5, 7, 9, 11\}$ .(c)  $\{5, 9, 17, 21\}$ .(d)  $\{13, 17, 21\}$ .

Turn

4 Median of the series 4, 11, 12, 19, 20, 26, 27, 45, 52, 60, 83 is :

- (a) 20. (b) 26.  
(c) 27. (d) 23.5.

5 The data used by the investigator, which was already collected and used by someone else for his study, is called :

- (a) Primary data. (b) Secondary data.  
(c) Tertiary data. (d) Public data.

II. Fill in the blanks :

6 If  $ax^2 + bx + 8 = 0$  does not have 2 distinct real roots, the minimum value of  $2a + b =$  \_\_\_\_\_.

7 Twelfth term of the AP 7, 14, 21... is \_\_\_\_\_.

8 If  $A = \{a, b, c, d, e, f\}$  and  $B = \{a, e, i, o, u\}$   $A \cup B =$  \_\_\_\_\_.

9 Determinant of the matrix  $\begin{bmatrix} a & b \\ c & d \end{bmatrix}$  is \_\_\_\_\_.

10 Collection of data by direct conversation with respondent is called \_\_\_\_\_.

(10 × 1 = 10 marks)

### Part B (Short Answer Questions)

Answer any **eight** questions.

Each question carries 2 marks.

- 11 Define Statistics.
- 12 What is Pie chart ?
- 13 Find mean of the following figures : 25, 32, 18, 20, 35, 40, 70, 49, 50, 24.
- 14 Find the mean deviation from mean and its coefficient for the following values :  
25, 63, 85, 75, 62, 70, 83, 28, 30, 12.
- 15 Calculate geometric mean of the following figures :  
57.5, 87.75, 53.5, 73.5, 84.75.

16. Construct an index number for 2001 taking 2000 as base :

Commodity	Price in 2000	Price in 2001
A	5	7
B	8	9
C	12	15
D	25	24
E	3	4

- 17 Determine trend using semi averages method :

Year	:	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Values	:	45	58	62	50	70	72	68	70	78	75

- 18 If  $A = \{1234\}$ ,  $B = [2468]$ ,  $C = \{3456\}$ , prove that  $A \cap (B \cap C) = (A \cap B) \cap C$ .

- 19 Find the 15th and 20th terms of the series 2, 8, 14, 20....

- 20 Solve  $15/(x+4) = 10/(x-3)$ .

(8 × 2 = 16 marks)

### Part C (Short Essay Questions)

Answer any **six** questions.

Each question carries 4 marks.

- 21 Distinguish between less than ogive and more than ogive.

- 22 Why is arithmetic mean considered to be the best average ?

- 23 Calculate median from the following series :

Number of family members	:	1	2	3	4	5	6	7	8	9
Number of houses	:	26	113	120	95	60	42	21	14	54

- 24 For the following values find standard deviation, variance and coefficient of standard deviation

5, 8, 7, 11, 9, 10, 8, 2, 4, 6.

25. Find quantity index number by weighted average relative method :

Item	Quantity		Weight
	2004	2008	
A	10	12	5
B	8	10	4
C	12	15	3

26. If 5<sup>th</sup> and 9<sup>th</sup> terms of an arithmetic progression are 44 and 68 respectively, calculate the sum of the first 25 items :

27. Solve

$$\frac{2x+4}{2x-2} = \frac{x+4}{2x-4}$$

28. Solve  $3x^2 + 11x - 4 = 0$ .

(6 × 4 = 24 marks)

### Part D (Essay Questions)

Answer any two questions.  
Each question carries 15 marks.

29. Calculate standard deviation of the following two series and state which one is more variable :

Marks	No. of students	
	Section A	Section B
20-30	5	7
30-40	10	15
40-50	25	30
50-60	5	15
60-70	5	8

30. For the following data find Fisher's Index :

Commodities	2005		2008	
	Price	Quantity	Price	Quantity
A	2	3	3	2
B	8	2	9	3
C	5	5	6	5
D	4	2	5	3
E	3	4	4	2

31. What is a questionnaire? What are its essential qualities?

(2 × 15 = 30 marks)