FIRST SEMESTER B.Com. PROFESSIONAL DEGREE EXAMINATION, NOV. 2023

(CUCBCSS-UG)

(Regular/Supplementary/Improvement)

CC17U BCP1 B03 – NUMERICAL SKILLS

(Core Course)

(2017 Admission onwards)

Time: Three Hours   Maximum: 80 Marks

PART A

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

Choose the correct answer from the following:

1. ------------ is the sum of the elements of the leading diagonal.

   (order of a matrix, trace of a matrix, transpose of a matrix, inverse of a matrix)

2. A set contains no elements is called ------------

   (singleton set, null set, power set, none of these)

3. The classification $10-19, 20-29, 30-39$ is the example of

   (inclusive, exclusive, both, none)

4. ------------ variations are periodic movements.

   (seasonal, secular trend, cyclic, irregular)

5. ------------ index number is called ideal index number.

   (Kelley's, Paache's, Laspeyer's, Fishers)

Fill in the blanks:

6. If in the equation $ax^2+bx+c=0$, b is zero then the equation becomes $ax^2+c=0$. This is called ------------ equation.

7. Arithmetic mean between a and b is ------------

8. The graphical representation of a cumulative frequency distribution is called ------------

9. Lorenz curve is used to study ------------

10. The range of 15,12,10,9,17,20 is ------------

(10 × 1 = 10 Marks)

PART B

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

11. Write a short note on Venn Diagram.

12. Solve $\frac{5}{9}y - 4 = 6$

13. Insert 4 Arithmetic means between 5 and 20.

14. In a G.P 5th term is 27 and 8th terms is 729. Find its 11th term.

15. Find the rate of interest at which a sum of Rs.800 yields an interest of Rs. 240 in 3 years.

16. What are the different steps in formulation of a frequency table?

17. Distinguish between diagrams and graphs.

18. For a frequency distribution Median=132.8, Mode=141.3. Find mean.

19. Construct the price index number from the following group.

	A	B	C	D	E
Index	350	200	240	150	250
Weight	5	2	3	1	2

20. What is the method of moving averages in measuring trend?

(8 × 2 = 16 Marks)

PART C

Answer any *six* questions. Each question carries 4 marks.

21. If A = $\begin{bmatrix} 1 & 2 \\ 3 & 4 \\ 5 & 6 \end{bmatrix}$, B = $\begin{bmatrix} -1 & -2 \\ 0 & 4 \\ 3 & 1 \end{bmatrix}$ Find the matrix X such that $A + B - X = 0$

22. If $U = \{1, 2, 3, 4, 5, 6, 7, 8\}$ $A = \{1, 2, 3\}$ $B = \{2, 4, 5\}$ $C = \{2, 4, 6\}$

    Verify that a) $(A \cup B)' = A' \cap B'$ b) $(A \cap B)' = A' \cup B'$

23. Solve $12x^2 - 4x - 5 = 0$.

24. A man saved Rs.16500 in ten years. In each year after the first he saved Rs.100 more than he did in the preceding year. How much did he save in the first year?

25. Explain the scope of statistics.

26. Compute median from the following data

Class	0-10	10-20	20-30	30-40	40-50	50-60	60-70
Frequency	8	12	20	23	18	7	2

27. Write a note on seasonal variations.

28. Calculate (i) Laspeyer's (ii) Paasche's (iii) Fischer's Index numbers from the following data.

Commodity	Price		Quantity consumed	
	2009	2010	2009	2010
A	0.80	0.70	10	11.0
B	0.85	0.90	8	9.0
C	1.30	0.80	5	5.5

(6 × 4 = 24 Marks)

PART C

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

29. State the various methods of collecting data and discuss their relative merits and demerits.

30. Find four moments of the following frequency distribution. Also find coefficient of skewness and measure of kurtosis and interpret it

Class	0-2	2-4	4-6	6-8	8-10
Frequency	2	3	3	1	1

31. Solve the following equations

$5x - 6y + 4z = 15$

$7x + 4y - 3z = 19$

$2x + y + 6z = 46$

(2 × 15 = 30 Marks)

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