23U157S (Pages: 2) Name: ……..……

Reg. No: ……..…….

FIRST SEMESTER B.Voc. DEGREE EXAMINATION, NOVEMBER 2023

(Information Technology)

CC18U GEC1 BM03 – BASIC NUMERICAL SKILLS

(2018 to 2020 Admissions – Supplementary)

Time: Three Hours Maximum: 80 Marks

PART A

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

1. A well-defined collection of objects is called …….
2. The trace of the matrix A = $\begin{vmatrix} 1 & 5 \\ 2 & 7 \end{vmatrix}$ is …….
3. A matrix in which every element is zero, is …….
4. In geometric progression the sum of n terms is given by …….
5. The graphical representation of cumulative frequency curve is known as …….
6. The arithmetic mean of the numbers: 24,34,32,26,30 is …….
7. Find x in the following equation: - 8x + 7 = 4x + 12.
8. If Mean > Median > Mode, the distribution is …….
9. ……. are known as pulse of the economy
10. Lorenz curve is used to study …….

(10 × 1 = 10 Marks)

Part B

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

11. If A = {2,4,6,8}, B = {1,3,5,7} find $A \cap B$.
12. State De Morgan's Law.
13. Name any two measures of dispersion.
14. What is a Venn diagram?
15. What do you mean by kurtosis?
16. Find the 10^{th} term of the series: -10, -6, -2, 2……...
17. Find the median of the values 124,111,109,156,148,109,132,137,150.
18. The amount of simple interest for Rs. 15,000 for 2 years is 1000, find rate of interest.
19. What do you mean by a questionnaire?
20. Define index numbers.
21. What is a histogram?
22. Solve: $8x + 7y = 10, 11x = 10(1 - y)$

(8 × 2 = 16 Marks)

Part C

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

23. Differentiate between primary data and secondary data.
24. What are the limitations of Statistics?
25. Define: (a) Diagonal matrix (b) Square matrix (c) Singular matrix (d) Equal matrices.
26. Find the value of the determinant of $\begin{vmatrix} 1 & 4 & 7 \\ 4 & 3 & 3 \\ 2 & 5 & 8 \end{vmatrix}$.
27. In a committee, 50 people speak French, 20 speak Spanish and 10 speak both Spanish and French. How many speak at least one of these two languages?
28. The sum of the first three terms of an AP is 30 and the sum of the first 7 terms is 140. Find the sum of the first 10 terms.
29. Draw a less than ogive for the following data:

Age	20-30	30-40	40-50	50-60	60-70
Frequency	6	10	14	9	7

30. If A= $\begin{bmatrix} 2 & 3 & -1 \\ 6 & 4 & 0 \\ 9 & 1 & 5 \end{bmatrix}$ Find inverse of A.
31. Explain the components of time series.

(6 × 4 = 24 Marks)

Part D

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

32. Explain the different stages in statistical investigation.
33. From the following table of marks of two students A and B in 10 sets of 100 marks each, find out who is more intelligent and who is more consistent.

A	10	38	99	45	79	15	81	12	92	60
B	58	49	55	52	63	49	50	61	42	56

34. Using the following data calculate Laspayre's, Paasche's and Fisher's Ideal Index Number:

Commodity	2017		2018	
	Quantity	Price	Quantity	Price
A	10	60	12	65
B	18	108	22	109
C	25	45	27	52
D	30	32	32	40
E	64	90	68	75

35. Apply Cramer's Rule to find the solution to the following equations.

$3x + y + z = 8;\ x + y + z = 6, 2x + y - z = 1.$

(2 × 15 = 30 Marks)

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