

20U153

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Name:

Reg. No:

FIRST SEMESTER B.Voc. DEGREE EXAMINATION, NOVEMBER 2020

(CUCBCSS- UG)

(Regular/Supplementary/Improvement)

CC15U GN3 A11 (1)/CC18U GEC1 BM03 - BASIC NUMERICAL SKILLS

(2018 Admission onwards)

Time: Three Hours

Maximum: 80 Marks

Part A

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

1. If A and B are two disjoint sets, then $n(A) = 2$, $n(B) = 3$ then $n(A \cup B) = \dots\dots\dots$
2. The trace of the matrix $A = \begin{bmatrix} 4 & -3 \\ 5 & 2 \end{bmatrix} = \dots\dots\dots$
3. Difference between the lower and upper class boundaries is called
4. Mean of three items is 30. Two of them are 20 and 30. The third number is
5. The best measure of dispersion is
6. A time series is a set of values arranged in order.
7. If A is a matrix of order 3x4 and B is of order 4x3, then the product AB is of order AB is
8. The solution of the equation $x^2 + 4 = 0$ is
9. If 9, 14, 19... is an A.P, then the 11th term is
10. When $A = \{a, b, c, d\}$, its power set has elements

(10 x 1 = 10 Marks)

Part B

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

11. When do you that a distribution is symmetric?
12. What is Venn diagram?
13. List any two diagrams used for the representing frequency distributions.
14. Write the distributive law of set operations.
15. Find the value of the determinant $\begin{vmatrix} 1 & 2 \\ 5 & -3 \end{vmatrix}$.
16. How many terms of the series $9+12+15+\dots\dots\dots$ must be taken so that the sum may be 306?
17. Define harmonic mean.
18. Why index numbers are known as economic barometers?
19. Solve by factoring: $x^2 - 4x + 4 = 0$.

(1)

Turn Over

- 20. Find the mode from the given values: 40, 25, 63, 35, 56, 35, 43, 40, 35, 52.
- 21. Find the compound interest for Rs.10000 for 3 years if interest is payable half yearly at 7% per annum.
- 22. Distinguish between questionnaire and schedule.

(8 x 2 = 16 Marks)

Part C

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

- 23. Find three numbers in G.P such that their sum is 14 and product is 64.
- 24. What are the properties of determinants?
- 25. Solve: $x+y = 6$ and $xy = 8$.
- 26. Explain the components of time series.
- 27. Show that $\begin{vmatrix} 5 & 7 & 2 \\ 2 & 3 & 1 \\ 4 & 6 & 2 \end{vmatrix}$ is singular.
- 28. The rate of monthly salary of an office assistant increased annually in A.P. If he is drawing Rs.200 a month during the 11th year and Rs.380 a month during the 29th year find out his initial salary and the rate of annual increment. Also find his salary at the time of completion of 32 years of service.
- 29. Find out the median for the following frequency distribution of mark of 60 students.

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70
Frequency	4	6	10	20	10	6	4

- 30. Explain different methods of sampling.
- 31. Find out the four yearly moving average for the following data:

Year	Production
1998	80
1999	81
2000	85
2001	79
2002	86
2003	94
2004	90
2005	108
2006	120
2007	121
2008	148

(6 x 4 = 24 Marks)

Part D

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

- 32. Find Bowley's coefficient of skewness.

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

- 33. Solve the system of equations using Cramer's rule:

$$\begin{aligned} 2x - 2y + z &= 1 \\ x + 2y + 2z &= 2 \\ 2x + y - 2z &= 7 \end{aligned}$$

- 34. Explain the steps involved in statistical enquiry.

- 35. Using the data given below show that Fisher's index number is ideal:-

Commodity	Base Year		Current Year	
	Price	Quantity	Price	Quantity
A	1	10	1.5	8
B	5	12	6.0	10
C	8	5	10.0	2

(2 x 15 = 30 Marks)
