

19U365

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Name: .....

Reg. No.....

**THIRD SEMESTER B.Voc. DEGREE EXAMINATION, NOVEMBER 2020**

(Regular/Supplementary/Improvement)

**CC18U GEC3 NS08 - BASIC NUMERICAL SKILLS**

(Food Processing and Technology)

(2018 Admission onwards)

Time: Three Hours

Maximum: 80 Marks

**Part A**

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

1. The sum of deviations of values from its arithmetic means is equal to -----
2. A and B are two sets and  $B \subset A$ , then  $A \cap B =$  -----
3. The sum of first 'n' terms of an GP is -----
4. The quadratic equation of  $ax^2 + bx + c = 0$  has equal roots if  $b^2 - 4ac$  -----
5. The point whose co-ordinate is (-1, 1) lies in – quadrant.
6. ----- curve is known as mesokurtic
7. ----- is an ideal measure to represent average of index numbers.
8. Lorenz curve is related to the measure of -----
9. In a moderately asymmetrical distribution, Q.D. is ----- of M.D.
10. The transpose of the matrix  $\begin{bmatrix} 5 & 0 \\ -1 & 5 \end{bmatrix}$  is -----

(10 x 1 =10 Marks)

**Part B**

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

11. What is Venn diagram?
12. Distinguish between square matrix and symmetric matrix.
13. In what way coefficient of variation is superior to SD in assessing variability of data.
14. Write any two uses of index numbers.
15. How do you distinguish a symmetrical distribution from a skewed distribution?
16. Find median when mean is 50 and mode is 40
17. Solve the equation by factoring:  $x^2 - 5x + 6$
18. Which is the 10<sup>th</sup> term of the GP series 200, 100, 50, 25?
19. If a, b, c are in AP, show that  $b = \frac{a+c}{2}$
20. If  $A = \{1,2,3,4,5,6\}$   $B = \{2,4,6,8\}$  find  $A \cup B$  and  $A \cap B$
21. A person gets Rs. 300 as 1<sup>st</sup> year's interest on a certain sum and Rs. 330 as 2<sup>nd</sup> year's interest, find the sum.
22. What is histogram?

(8 x 2 = 16 Marks)

### Part C

Answer any 6 questions. Each question carries 4 marks.

23. Write a brief note on various components of time series.

24. If  $A = \begin{bmatrix} 8 & 0 & -8 \\ 6 & 2 & -8 \\ 2 & -2 & 2 \end{bmatrix}$  Find  $A^{-1}$

25. Find the value of  $x$  such that  $PQ = QR$  where  $P, Q$  and  $R$  are  $(6, -1), (1, 3)$  and  $(x, 8)$  respectively.

26. The income of  $A$  and  $B$  is in the ratio  $4:3$ . Their expenditure is in the ratio  $3:2$ . If they both save Rs. 600 at the end of the year, find the annual income of each.

27. Discuss the different stages in statistical investigation.

28. The compound interest on a sum of money for two years is Rs. 205 and the simple interest on the same sum for the same period at the same rate is Rs. 200. Find the sum and the rate.

29. In an examination, 75% of candidates passed in English and 65% in Mathematics, while 15% failed in both subjects. If 495 candidates passed in both subjects, find the total number of candidates who took the examination.

30. Find two consecutive positive integers, sum of whose squares is 365.

31. Calculate Median from the following data:

Marks	0-10	10-20	20-30	30-40	40-50
No. of students	5	15	30	8	2

(6 x 4 = 24 Marks)

### Part D

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

32. Discuss various uses and applications of statistics in business. Also, explain different measures of descriptive statistics.

33. Solve the following equations using Cramer's rule:

$$2x - 3y = 4$$

$$-x + 4y - z = 11$$

$$4x - 5y + 2z = -3$$

34. Compute Marshall Edgeworth and Fisher's index numbers from the following data.

Commodity	2000		2001	
	Price	Qty	Price	Qty
A	5	100	6	120
B	10	60	8	70
C	10	125	12	100

35. Calculate Karl Pearson's coefficient of skewness the following data:

Marks	0-20	20-40	40-60	60-80	80-100
Frequency	10	20	20	15	5

(2 x 15 = 30 Marks)

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