C 31124 (Pages : 4) Name.....

Reg. No.....

THIRD SEMESTER B.Sc. (L.R.P.)/B.M.M.C. DEGREE EXAMINATION NOVEMBER 2017

(CUCBCSS—UG)

Common Course

A 11—BASIC NUMERICAL SKILLS

Time : Three Hours Maximum : 80 Marks

Part I

Answer **all** *questions.*

1. Is ———.

   (a) Not a set. (b) Not a sub-set.

   (c) Sub-set of every set. (d) Not existing.

2. The solution of the equation 4 = 2/3 X is ———.

   (a) 6. (b) 12.

   (c) 8. (d) 16.

3. Variations with some degree of regularity within a period of one year is :

   (a) Seasonal variation. (b) Secular trend.

   (c) Cyclical Variation. (d) Irregular variation.

4. The perpendicular distance from a point to the x-axis is called :

   (a) x - co-ordinate. (b) Ordinate.

   (c) x - intercept. (d) None of these.

5. If À is a Symmetric Matrix, then A' = ———.

   (a) A. (b) |A|.

   (c) 0. (d) 1.

6. Sum of squares of deviation from their mean is :

   (a) Maximum. (b) Minimum.

   (c) Zero. (d) None of these.

7. What is the median value for 5, 8, 6, 9, 11, 4 :

   (a) 6. (b) 7.

   (c) 8. (d) 11.

Turn over

8. Common difference of sequence 5, 8, 11, 14, ... is :

(a) 3. (b) –3.

(c) 0. (d) 1.

9. ——— is a three dimensional diagram.

(a) Simple bar diagram. (b) Cube.

(c) Multiple bar diagram. (d) Pie diagram.

10. Which *one* of these sampling methods is a probability method ?

(a) Quota. (b) Judgment.

(c) Convenience. (d) Simple random.

(10 × 1 = 10 marks)

Part II (Short Answer Questions)

Answer any **eight** *questions.*

11. Why Fisher's Index Number is called Ideal Index Number ?

12. Define Statistics.

13. What is Lorenz Curve ?

14. Sate any two differences between primary and secondary data.

15. What is a scalar matrix ?

16. Find the 6th term of the G. P. : 4, 8, 16,...

17. A = B = C = verify A.

18. Solve the equation $2x^2 + 8x + 8 = 0$.

19. Find the compound interest on Rs. 8,000 for 4 years if interest is payable half yearly for the first three years at the rate of 8% p.a. and for the fourth year, the interest is payable quarterly at the rate of 6% p.a.

20. From the following matrix, calculate (a) A + B and (b) A – B

$$A = \begin{matrix} 2 & 3 & 5 \\ 5 & 4 & 2 \\ 2 & 5 & 9 \end{matrix} \qquad B = \begin{matrix} 5 & -9 & 6 \\ 2 & 3 & -5 \\ 4 & -9 & 7 \end{matrix}$$

(8 × 2 = 16 marks)

Part III (Short Essays)

Answer any **six** *questions.*

21. A man sells 7 horses and 8 cows at Rs.2,940 and 5 horses and 6 cows at Rs.2,150. What is the selling price of each ?

22. By means of Venn diagram, prove that.

23. From the following data, compute Karl Pearson's Co-efficient of skewness.

    25 18 32 20 25 48 72 24 50 25.

24. The marks obtained by 50 students are given below. Construct a grouped frequency distribution following the steps in constructing frequency distribution.

31	13	46	31	30	45	38	42	30	9	30
30	46	36	2	41	44	18	29	63	44	30
19	5	44	15	7	25	12	30	6	22	24
37	15	6	39	32	21	20	42	31	19	14
23	28	17	53	22	21					

25. Compute Standard Deviation and Co-efficient of Variation from the following data :—

Temperature	–40 to –30	–30 to –20	–20 to –10	–10 to 0	0 to 10	10 - 20	20 - 30
No. of Days	10	28	30	42	65	180	10

26. Solve the following equation by using matrix.

    $2x - 3y = 3$ and $4x - y = 11$.

27. The first term of an A. P. is 10, the last term is 50. If the sum of all the terms is 480, find the common difference and the number of terms.

28. An enquiry into the budgets of middle class families in a city gave the following information :

Expenses on	Food (35%)	Rent (15%)	Clothing (20%)	Fuel (10%)	Others (20%)
Price (2015)	150	30	75	25	40
Price (2016)	145	30	65	23	45

Construct Cost of Living Index Number from the following.

(6 × 4 = 24 marks)

Part IV (Long Essays)

Answer any **two** *questions.*

29. Find the inverse of Matrix A where A = 3 5 7

2 –3 1

1 1 2

30. Compute the trend values by the method of Least Square. Also estimate the trend value in 2019 :

Year	:	2010	2011	2012	2013	2014	2015	2016	2017
Value	:	56	55	51	47	42	38	35	32

31. Calculate Mode by (a) Algebraic method ; and (b) Histogram :

Size	:	10-15	15-20	20-25	25-30	30-35
Frequency	:	5	20	47	38	10

(2 × 15 = 30 marks)