D 51241 (Pages : 4) Name.....

Reg. No.....

THIRD SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2018

(CUCBCSS–UG)

LRP Pattern

A 11—BASIC NUMERICAL SKILLS

(2014 Admissions)

Time : Three Hours Maximum : 80 Mar

Part I

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

1. $A = \{x : x \in N, 3 \leq x \leq 50\}$ is a _____ set.

   (a) Finite Set. (b) Infinite Set.

   (c) Null set. (d) Singleton set.

2. Value of the determinant of $\begin{vmatrix} 2 & 4 \\ 8 & 2 \end{vmatrix}$ is _____.

   (a) 56. (b) 28.

   (c) – 56. (d) – 28.

3. $7x - 21 - 3x + 13 = 7 + 6x - 19$, Value of x is _____.

   (a) 1. (b) 2.

   (c) 3. (d) 4.

4. $ax^2 + c = 0$ is a _____.

   (a) Simple linear equation. (b) Simultaneous equations.

   (c) Quadratic equations. (d) Differential equation.

5. How many terms are there in 20, 25, 30, _____, 140 ?

   (a) 22. (b) 23.

   (c) 24. (d) 25.

6. Find the 15^{th} terms of the sequence 20, 15, 10 _____.

   (a) – 45. (b) – 50.

   (c) – 55. (d) 0.

Turn ov

7. The middle value of an ordered array of numbers is the :

(a) Mean. (b) Median.

(c) Mode. (d) Range.

8. Prosperity, Recession and depression in a business is an example of :

(a) Irregular trend. (b) Seasonal trend.

(c) Cyclical trend. (d) Secular trend.

9. A complete enumeration of all the items in the population is known as ————————.

(a) Census Enquiry. (b) Sampling study.

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

10. ———————— is a one dimensional diagram.

(a) Bar Diagram. (b) Line Diagrams.

(c) Both (a) and (b). (d) None of the above.

(10 × 1 = 10 marks)

Part II (Short Answer Questions)

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

11. What is Venn diagram ?

12. If $= \begin{pmatrix} 6 & 0 & 7 \\ 7 & -2 & 3 \end{pmatrix}$. Find 3A.

13. Solve $x^2 - 6x + 8 = 0$.

14. What is geometric progression ?

15. Represent $A = \{2, 4, 6, 8, 10, \ldots\}$ in set builder method.

16. For what value of K, will K + 9, $2k-1$, and $2k + 7$ are the consecutive terms of an AP ?

17. Find the rate of interest per annum if the simple interest on a principal of Rs. 5,000 is 800 for 4 years.

18. Calculate geometric mean from the following figures :

57.5, 87.75, 53.5, 73.5, 81.75.

19. Draw a Pie diagram to represent distribution a certain blood group 'O' among Gypsies, Indians and Hungarians :

Blood Group	Gypsies	Indians	Hungarian
'O'	360	180	90

20. What do you mean by Index Number ?

(8 × 2 = 16 marks)

Part III (Short Essays)

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

21. Using the following sets, verify that $A \cup (B \cup C) = (A \cup B) \cup C$:

$A = \{1, 2, 3\}$; $B = \{2, 4, 6\}$; $C = \{3, 4, 5\}$.

22. Solve the following equation by using matrices :

$2x - 3y = 3$

$4x - y = 11$

23. Prove that $A \cap (A \cup B) = A \cup (A \cap B)$ by means of Venn diagram.

24. In an arithmetic progression the sum of the first 10 terms is 400 and the sum of the next ten terms is 1000. Find the common difference and the first term.

25. If the mean of the following distribution is 9, find the value of p.

X	4	6	$p + 7$	10	15
f	5	10	10	7	8

26. If $A = \begin{pmatrix} 1 & 3 & 2 \\ 0 & 2 & 1 \\ 0 & 5 & 3 \end{pmatrix}$; $B = \begin{pmatrix} 3 & 1 & 2 \\ 4 & 2 & 3 \\ 4 & -1 & 1 \end{pmatrix}$.

Find the product of A and B.

27. Explain different types of diagrams used for the presentation of data.

28. Find the compound interest for Rs. 7,000 for 4 years if interest is payable half yearly at 6% per annum.

(6 × 4 = 24 marks)

Turn over

Part IV (Long Essays)

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

29. Find the sum of each of the geometric series $-2, \frac{1}{2}, -\frac{1}{8}, \ldots, -\frac{1}{37268}$.

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

Expenses on	Food	Rent	Clothing	Fuel	Misc.
Price (2006)	150	30	75	25	40
Price (2008)	145	30	65	23	45

Following weights were used Food 35, Rent 15, Clothing 20, Fuel 10, and Misc. 20.

What changes in the cost of living of 2008 as compared with 2006 are seen?

31. Find the standard deviation and co-efficient from the following data :

Size	Frequency
0–2	2
2–4	4
4–6	6
6–8	4
8–10	2
10–12	6

(2 × 15 = 30 marks)