C 5105 (Pages : 4) Name.....

Reg. No.....

FOURTH SEMESTER B.Com./B.B.A. DEGREE (SUPPLEMENTARY/ IMPROVEMENT) EXAMINATION, MAY 2016

(UG—CCSS)

Common Course

A13—BASIC NUMERICAL SKILLS

Time : Three Hours Maximum : 30 Weightage

I. Objective Type Questions. Answer all *twelve* questions :

Choose the correct answer :

1 If A is a non-empty set then $A \cup A^1$ = ———.

(a) A. (b) $\cup$.

(c) A^1. (d) None of these.

2 Which of the following is a measure of central tendency ?

(a) Quartile deviation. (b) Standard deviation.

(c) Range. (d) Median.

3 The K^{th} term of an A.P is $4k + 1$ then its common difference is :

(a) 5. (b) 4.

(c) 10. (d) – 2.

4 The Quadratic equation $x^2 + 5x + 6 = 0$ has :

(a) No solution. (b) Exactly two solution.

(c) One solution. (d) None of these.

Fill in the blanks :

5 In the quadratic equation $ax^2 + bx + c = 0$ $(a = 0)$, $b^2 - 4ac$ is called ———.

6 The n^{th} term of the sequence 3, 5, 7 ———.

7 The point (7, 8) lies in the ——— quadrant.

8 The aggregated or totality of statistical data forming a subject of investigation is called ———.

Turn over

Answer the following :

9 Find the median of the following data :

35, 32, 36, 34, 41, 45, 28, 50, 49.

10 Let U = {1, 2, 3, 4, 5, 6, 7, 8}, A = {2, 4, 6, 8} B = {2, 4, 8}, Find $A^1 \cup B^1$.

11 Find any *three* solution of the Equation $x + 4y + 2 = 0$.

12 Find the sum to n terms of the A.P whose K^{th} term is 5 K + 1.

(12 × ¼ = 3 weightage)

II. Short Answer Questions. Answer all *nine* questions. Each question carries 1 weightage :

13 Let $A = \begin{bmatrix} 2 & 4 \\ 1 & -3 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & -1 & 5 \\ 0 & 2 & 6 \end{bmatrix}$.

(a) Find A B.

(b) Is BA defined ? Justify your answer.

14 Solve $x^2 + \frac{x}{\sqrt{2}} + 1 = 0$.

15 If = U {1, 2, 3, 4, 5, 6, 7, 8, 9}, A = {2, 4, 6, 8}, B = {2, 3, 5, 7}.

Verify that

(i) $(A \cup B)^1 = A \cap B^1$.

(ii) $(A \cap B)^1 = A^1 \cup B^1$.

16 If A = {3, 5, 7, 9, 11}, B = {7, 9, 11, 13} and C = {11, 13, 15}, Find $A \cap (B \cup C)$.

17 Write down measures of central tendency.

18 The n^{th} term of an A.P is $2.n + 1$:

(a) Write its first two terms.

(b) Find the sum of first 10 terms.

19 If $A = \begin{bmatrix} 3 & 1 \\ -1 & 2 \end{bmatrix}$ then show that $A^2 - 5A + 7I = 0$.

20 What are the merits of Arithmetic mean ?

21. Find the inverse of the matrix $\begin{bmatrix} -1 & 5 \\ -3 & 2 \end{bmatrix}$.

(9 × 1 = 9 weightage)

III. Short Essay *or* Paragraph Questions. Answer any *five* questions from seven. Each questions carries 2 weightage :

22 Solve : $3x + 2y = 11$

$2x + 3y = 4$

23 Find the sum of integers from 1 to 2001.

24 Find the 12^{th} term of G.P whose 8th term is 192 and common ratio is 2.

25 Find the mean deviation about mean for the data :

x	5	10	15	20	25
f	7	4	4	6	5

26 Compute the inverse of the matrix $A = \begin{bmatrix} 1 & 3 & 3 \\ 1 & 4 & 3 \\ 1 & 3 & 4 \end{bmatrix}$.

27 Consider $f(x) = x^2 - 5x + 6$ and let $A = \begin{bmatrix} 2 & 0 & 1 \\ 2 & 1 & 3 \\ 1 & -1 & 0 \end{bmatrix}$.

(a) Write $f(A)$.

(b) Find the value of $f(A)$.

28. Let $A = \begin{bmatrix} 2 & 4 \\ 1 & -3 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & -1 & 5 \\ 0 & 2 & 6 \end{bmatrix}$.

Find : (i) AB

(ii) Is BA defined ? Justify your answer.

(5 × 2 = 10 weightage)

IV. Essay questions. Answer any *two* questions from three :

29 Draw the frequency polygon and histogram for the following data :

Class Interval	0–10	10–20	20–30	30–40	40–50
Frequency	12	13	25	20	10

30 Solve the system of Equations :

$x - y + z = 4$

$x - 2y - 2z = 9$

$2x + y + 3z = 1.$

31 Find the sum of first 51 terms of an AP whose second and third terms are 14 and 18 respectively.

(2 × 4 = 8 weightage)