

C 25576

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Name.....

Reg. No.....

**FOURTH SEMESTER B.Com./B.B.A./B.Sc. DEGREE (SUPPLEMENTARY)
EXAMINATION, APRIL 2017**

(UG—CCSS)

Common Course

A 13—BASIC NUMERICAL SKILLS

Time : Three Hours

Maximum : 30 Weightage

I. Objective Type Questions. Answer all *twelve* questions. Each question carries $\frac{1}{4}$ weightage :

Choose the correct answer :

1 If the sum of N observations is 630 and their mean is 42 , then the value of N is :

- (a) 21. (b) 30.
(c) 15. (d) 20.

2 Mean deviation is minimum when deviations are taken from :

- (a) Mean. (b) Median.
(c) Mode. (d) Zero.

3 If $n = P$, then the order of the matrix $7x - 5z$ is :

- (a) $P \times 2$. (b) $2 \times n$.
(c) $n \times 3$. (d) $p \times n$.

4 If A and B are any *two* non-empty sets then $(A - B) \cup (A \cap B) =$

- (a) A . (b) B .
(c) A^1 . (d) B^1 .

Fill in the blanks :

5 The arithmetic mean of n natural numbers from 1 to n is _____.

6 Coefficient of variation is usually expressed in _____.

7 The distance of the point (3, 2) from the origin is _____.

8 The general equation of a straight line is _____.

Turn over

Answer the following :

- 9 Find the mean of the data 6, 8, 10, 12, 14, 16, 18, 20, 22, 24.
- 10 Find four solutions of the equation $3x + 3y = 0$.
- 11 State De Morgan's laws for two sets A and B.
- 12 Find the roots of the equation $x^2 + 5x + 6 = 0$.

(12 × ¼ = 3 weightage)

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

- 13 Find the mean deviation about the mean for the data :
6, 7, 10, 12, 13, 4, 8, 12.
- 14 Find the sum of all three digit numbers which are multiples of 9 ?
- 15 Prove that the points (1, 4) (4, 1) and $(\frac{5}{2}, \frac{5}{2})$ lie on the same line.
- 16 Solve the equation $9x^2 + 12x + 4 = 0$.
- 17 If $A = \{3, 5, 7, 9, 11\}$, $B = \{7, 9, 11, 13\}$, $C = \{11, 13, 15\}$.

Find $(A \cap B) \cap (B \cup C)$?

- 18 Solve $x + 2y = -1$

$$2x - 3y = 12.$$

- 19 Write down the measure of dispersion.

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

- 21 The 5th term of a G.P $5, -\frac{5}{2}, \frac{5}{4}, -\frac{5}{8}, \dots$ is $\frac{5}{1024}$ find the value of n .

(9 × 1 = 9 weightage)

III. Short essay or paragraph questions. Answer any *five* questions from seven. Each question carries 2 weightage :

22 Compute the inverse of the matrix :

$$A = \begin{bmatrix} 1 & 3 & 3 \\ 1 & 4 & 3 \\ 1 & 3 & 4 \end{bmatrix}$$

23 Consider $f(x) = x^2 - 5x + 6$ and

$$\text{Let } A = \begin{bmatrix} 2 & 0 & 1 \\ 2 & 1 & 3 \\ 1 & -1 & 0 \end{bmatrix}, \text{ find the value of } f(A) ?$$

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

25 Find the mean deviation about the median for the data.

x	15	21	27	30	35
f	3	5	6	7	8

26 If $A = \{1, 2, 3, 4, 5\}$, $B = \{1, 3, 5, 8\}$, $C = \{2, 5, 7, 8\}$ verify that $A - (B \cup C) = (A - B) \cap (A - C)$.

27 The income of a person is Rs. 3,00,000 in the first year and he receives an increase of Rs. 10,000 to his income per year for the next 19 years. Find the total amount he received in 20 years.

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

Find (i) AB .

(ii) Is BA defined? Justify your answer.

(5 × 2 = 10 weightage)

Turn over

IV. Essay questions. Answer any *two* questions from three. Each question carries 4 weightage :

29 Draw a frequency polygon for the following data :

Class	:	0 - 9	10 - 19	20 - 29	30 - 39	40 - 49	50 - 59	60 - 69
Frequency	:	5	15	20	25	17	11	9

30 How many multiples of 4 lie between 10 and 250.

31 Solve the system of Equations :

$$x + 2y + 5z = 10$$

$$x - y - z = -2$$

$$2x + 3y - z = -11.$$

(2 × 4 = 8 weightage)