

I Semester B.C.A. Degree Examination, Nov./Dec. 2017
(2014-15 and Onwards) (F + R) (CBCS)
BCA – 105 T : DISCRETE MATHEMATICS

Time : 3 Hours

Max. Marks : 100

Instruction: Answer all Sections.

SECTION – A

I. Answer any ten of the following :

(10×2=20)

- 1) If $A = \{2, 3, 4, 5\}$ and $B = \{0, 1, 2, 3\}$, find $A \cap B$.
- 2) If $A = \{x^2 - 5x + 6 = 0, x \in \mathbb{N}\}$ and $B = \{3, 4, 5\}$, find $A \times B$.
- 3) Define contradiction.
- 4) Define unit matrix with example.
- 5) If $A = \begin{bmatrix} 3 & 2 \\ -1 & 4 \end{bmatrix}$ and $B = \begin{bmatrix} 3 & 5 \\ -2 & 4 \end{bmatrix}$, find $2A + 3B$.
- 6) Find the characteristic roots of the matrix $A = \begin{bmatrix} 3 & 0 \\ 2 & 5 \end{bmatrix}$.
- 7) Prove that $\log_{3a} 2a \cdot \log_{4a^2} 3a = \frac{1}{2}$.
- 8) If ${}^n C_{30} = {}^n C_5$, find 'n'.
- 9) Define group.
- 10) If $\vec{a} = 2\hat{i} + 3\hat{j} + 4\hat{k}$, $\vec{b} = \hat{i} - 2\hat{j} + \hat{k}$, find $|2\vec{a} + \vec{b}|$.
- 11) Find the distance between the points A(2, -3) and B(4, 5).
- 12) Write the slope of the line $4x - 3y + 2 = 0$.

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