Roll No. | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 09

BMCI (2014 & Onwards)/B.Sc. (Mobile Computing & Internet)
(Sem.–1)

MATHEMATICS – I

Subject Code : BMCI-101
M.Code : 72198

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1) Answer briefly :

(a) Define Distributive laws with example.

(b) Prove that A×B = □ iff A = □ and B = □.

(c) Give the truth table for the statement ~ p □ q.

(d) Explain Logic operations.

(e) Give one example of Trees.

(f) Define Eulerian graphs.

(g) State DeMorgan's laws.

(h) Define faces of recursion.

(i) If A = $\begin{bmatrix} 0 & 2 & 3 \\ 2 & 1 & 4 \end{bmatrix}$, B = $\begin{bmatrix} 7 & 6 & 3 \\ 1 & 4 & 5 \end{bmatrix}$, find value 2A + 3B.

(j) Define Path and degree of region.

SECTION-B

2) For any sets A and B prove that (A – B) ∪ (B – A) = A ∪ B – A ∩ B.

3) Use mathematical induction to prove that 1 + 3 + 5.....+ (2n – 1) = n2.

4) Show that if a graph G contains two distinct paths from vertex u to vertex v. Then G has a cycle.

5) Explain various Properties of Relations with example.

6) Solve Sn – 9Sn–1 + 18Sn–2 = 0 if S0 = 1, S1 = 4.

SECTION-C

7) Solve S_n – 3 Sn–1 – 4Sn–2 = 4.

8) Two finite sets have m and n elements. The total number of subsets of the first set is 56 more than the total number of subsets of the second set. Find the value of m and n.

9) If finite connected graph is Eulerian iff each vertex has even degree.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.