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

Total No. of Questions : 09

M.Sc.(Computer Science) (2015 & Onwards)   (Sem.–1)
MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE
Subject Code : MSC-101
Paper ID : [A2187]

Time : 3 Hrs.   Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :
1. **SECTIONS-A, B, C & D contains TWO questions each carrying TEN marks each and students have to attempt any ONE question from each SECTION.**
2. **SECTION-E is COMPULSORY consisting of TEN questions carrying TWENTY marks in all.**
3. **Use of non-programmable scientific calculator is allowed.**

SECTION-A

Q1) Elaborate the need of Distributed & DeMorgan's Laws using suitable example.

Q2) Discuss various properties of Relations.

SECTION-B

Q3) Explain Arguments and validity of Arguments.

Q4) Discuss Principal of Mathematical Induction with its need.

SECTION-C

Q5) Explain graph coloring in detail.

Q6) Discuss spanning tree how they are helpful in finding shortest path.

SECTION-D

Q7) State and explain Matrix inversion method.

Q8) Explain Gauss Jordan method using suitable example.

SECTION-E

Q9) Answer briefly :

a) Explain partitioning of sets

b) What do you mean by domain range?

c) Explain various operations of graphs.

d) Explain directed graphs.

e) Explain Eulerian graphs.

f) What is the use of Recursion?

g) Explain features of recurrence relations.

h) Explain Graph optimization.

i) Discuss Associative Laws.

j) Discuss Quantifiers.