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

Total No. of Questions : 18

B.Tech (CSE) (Sem.–3)

DISCRETE STRUCTURES

Subject Code : CS-203

Paper ID : [A0452]

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

Explain the following :

Q1. Simple graph

Q2. Total order relation

Q3. Subgraph

Q4. Cut set with example

Q5. Chromatic number

Q6. Graph

Q7. Find number of distinct permutations formed from all the letters of word "SCIENCE".

Q8. Ring

Q9. Cyclic group

Q10. How a set can be represented?

SECTION-B

Q11. Prove distributive law of sets.

Q12. Draw directed complete graphs K_3 and K_5.

Q13. Prove that intersection of two equivalence relations is also equivalence relation.

Q14. Draw a graph which has both Euler and Hamiltonian circuit.

Q15. Using Boolean algebra show that c (a + b) + a'c + bc' = b + c.

SECTION-C

Q16. Define Homomorphism, Isomorphism and cyclic group.

Q17. What do you mean by minimum spanning tree? Explain.

Q18. Show that union of two subgroups is a subgroup if and only if one is contained in other.