Roll No. | | | | | | | | | | | | |

Total No. of Pages : 02

Total No. of Questions : 18

B.Tech.(CSE/IT) (2011 Batch) (Sem.–3)

DISCRETE STRUCTURES

Subject Code : BTCS-302

M.Code : 56592

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

Answer briefly :

1. Multigraph
2. Total order relation
3. Order of recurrence relation
4. Cutset
5. Bijective function
6. Boolean ring
7. Semigroup
8. Chromatic ring
9. Group
10. Complexity of linear search

SECTION-B

11. Define Hashing? Explain its advantages.

12. Prove that intersection of two equivalence relations is an equivalence relation.

13. Show that the intersection of two left ideals of a ring is again a left ideal of a ring.

14. Solve the recurrence relation $a_n + 5a_{n-1} + 6a_{n-2} = 3n^2 - 2n + 1$

15. Prove that a connected graph G is Eulerian if and only if all vertices are of even degree.

SECTION-C

16. Define abelian group. Discuss its properties.

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

18. Show that S is an ideal of S+T, where S is an ideal of ring R and T any subring of R.

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.