Roll No. ..... Total Pages : 3

BCAR/M-15 **1695**

DATA STRUCTURE-II

Paper–BCA-(242)

Time Allowed : 3 Hours] [Maximum Marks : 80

Note : Attempt **five** questions in all, selecting at least **one** question from each Unit. Q.No.**1** is Compulsory. All questions carry equal marks.

Compulsory Question

1. (a) Why cannot we generate post order threading in binary tree? 2

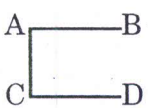
   (b) What is average case and worst case complexity of Radix-sort technique? 2

   (c) Hashing techniques are used in ..... file organisation. 1

   (d) Write down the benefit of AVL search tree. 2

   (e) B^+–trees is different from B-tree. How? 2

   (f) The graph given in figure is connected or not. 1



   (g) In a graph ..... node has in-degree zero and ..... node has out-degree zero. 2

(h) Tournament sort is also called 1

(i) Define Blocking factor in magnetic type. 2

(j) Linear Probing is a ..... technique. 1

UNIT–I

2. Generate a Huffman tree with following data : 16

Data-item :	A	B	C	D	E	F	G	H
Weight :	18	6	10	21	3	12	25	7

Also write the algorithm for creating Huffman tree.

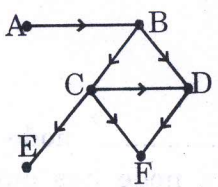
3. Define Binary Search Tree and discuss its application. How searching and insertion is performed in binary search tree? Explain. 16

UNIT–II

4. (a) Explain sequential and linked representation of graphs in memory using suitable examples for each. 8

(b) Write Breadth-first traversal algorithm for graphs. 8

5. Define Topological sorting. Using topological sorting algorithm find the topological sort of following graph. 16



UNIT–III

6. How external sorting differs from internal sorting techniques? Explain tournament sorting technique in detail by taking suitable example for it. 16

7. Compare various sorting and searching algorithms on the basis of their complexity by taking one suitable example for all. 16

UNIT–IV

8. (a) Differentiate between Direct access and Indexed Sequential file organisations. 8

   (b) What is Collision? How it can be removed? Explain. 8

9. Write short notes on the following : 16

   (a) Factors affecting choice of file organisation

   (b) File system

   (c) File Operations.