

Total No. of Questions—12]

[Total No. of Printed Pages—4+2

[3862]-217

S.E. (Comp.) (Second Semester) EXAMINATION, 2010

DATA STRUCTURES

(2008 COURSE)

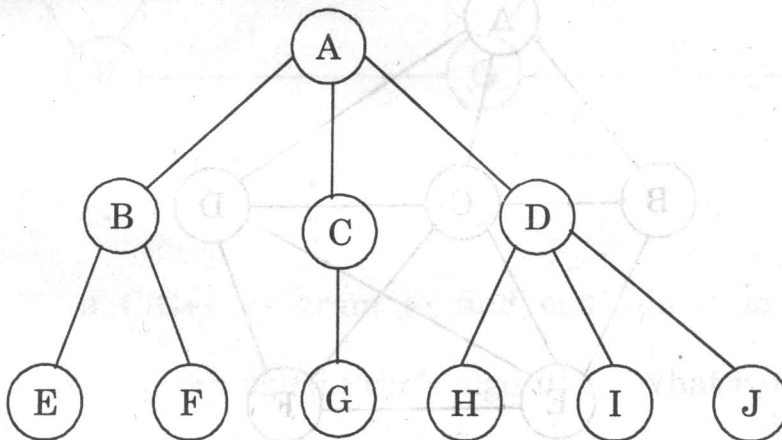
Time : Three Hours

Maximum Marks : 100

- N.B. :-** (i) Answer *three* questions from Section I and *three* questions from Section II.
 (ii) Answers to the two Sections should be written in separate answer-books.
 (iii) Neat diagrams must be drawn wherever necessary.
 (iv) Figures to the right indicate full marks.
 (v) Assume suitable data, if necessary.

SECTION I

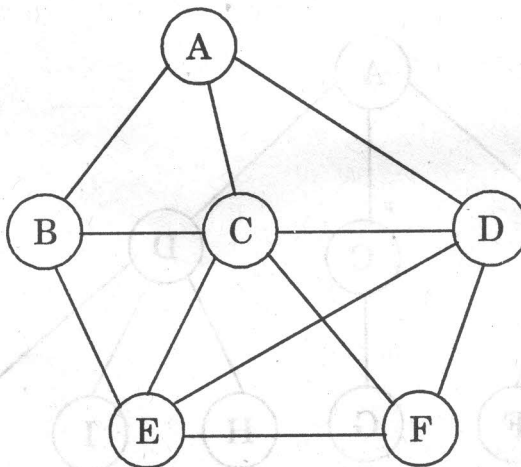
1. (a) What is binary tree ? How is it different than a basic tree ? Explain with figures. [5]
 (b) Convert the following tree to Binary tree step by step : [5]



- (c) Write a C/C++ function to print given binary tree in BFS (without using recursion). [8]

Or

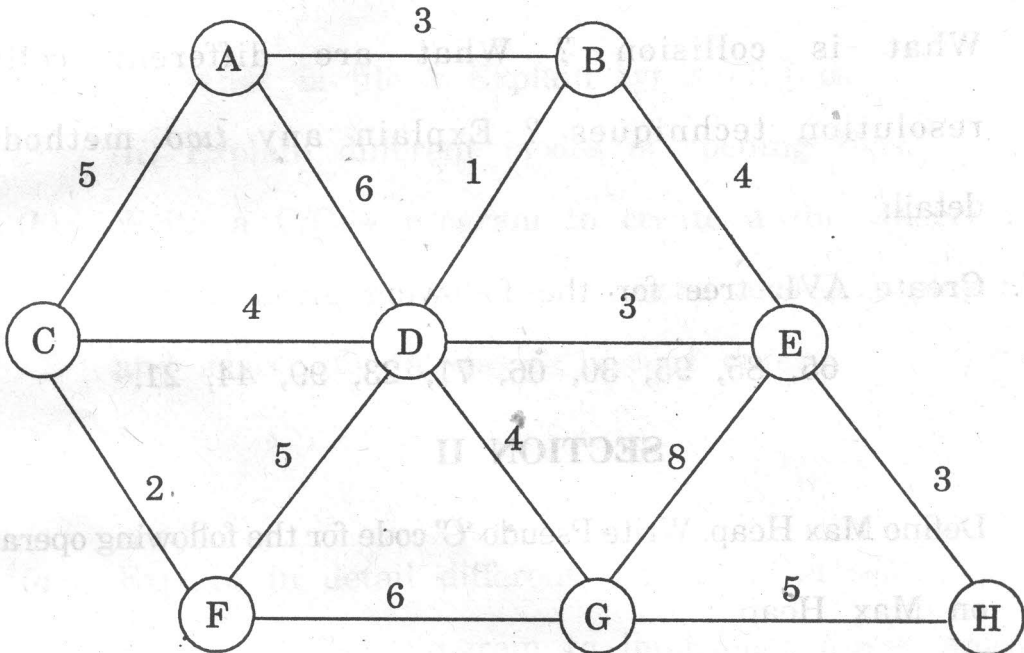
2. (a) (i) What is binary search tree ? Draw binary search tree for the following data : [4]
10, 08, 15, 12, 13, 07, 09, 17, 20, 18, 04, 05.
- (ii) What is threaded binary tree ? What are the advantages of threaded binary tree over normal binary tree ? Draw an in-order threaded binary tree upto three levels. [6]
- (b) Write a pseudo 'C' function to print given in-order threaded binary tree. Display the tree in inorder without using extra data structures. [8]
3. (a) What is graph ? Draw how the following graph can be represented using linked organization : [8]



- (b) Write an algorithm to print a given graph in DFS. What is time complexity of your algorithm ? [8]

Or

4. (a) What is minimum spanning tree ? Find out minimum spanning tree for the given graph step-by-step : [8]



- (b) Write a C/C++ program to find out minimum spanning tree of a given graph using Prim's algorithm. What is time complexity of your algorithm ? [8]

