

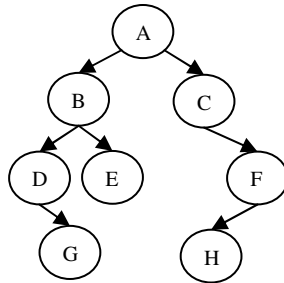
Subject: Data Structure(CSM 236)

NOTE: Candidates are required to attempt five questions in all. Attempt any two questions from each Section A and Section B. Section C is compulsory.

Section – A

4*4=16

- Q1. What is a Stack? Write down the algorithm to insert and delete an element from a stack
- Q2. Write down the pre-order, in-order, and post-order of following tree.



- Q3. Explain algorithm to implement selection sort with given example and write down its complexity.

1, 65, 55, 15, 5, 10, 75, 45, 35

- Q4. What are the various operations that can be performed on linked list? Explain any two.

Section – B

4*4=16

- Q5. Convert the following infix expression into postfix expression using stack:

A+(B*C-(D/E)+F)

- Q6. Explain various data types in detail.
- Q7. Write an algorithm to search an element 90 in a given list. Assume that the elements of list are:

20 47 56 62 78 90 116 118 126 130

- Q8. Define the following terms with example:

- a) Node of tree c) Degree of a tree c) Level of tree d) path
- e) Sibling of a tree

- b) What is a heap tree? Build a max heap of following numbers:

8, 44, 30, 33, 50, 22, 60, 55, 77, 12

Section-A

2*7=14

- 1. a) What is Data Structure? Name various types of data structures.
- b) write down various operations performed on data structures.
- c) what is complete binary tree?
- d) Evaluate the following postfix expression using stack:
9, 8, 5, 7, -, 6, +, *, 3, +, *
- e) What is Queue? How it is different from Stack?

- f) What do you mean by searching? Write down the complexity of binary search.
- g) What is an array? Differentiate it from linked list.