SECOND SEMESTER B.Sc. (C.S.) DEGREE EXAMINATION, MAY 2019

DATA STRUCTURE USING C

e : Three Hours   Maximum : 80 Marks

Answer any **five** *questions.*

(a) Define Data structure. Explain classification of a Data structure.

(b) Explain applications of Data structure.

(c) Define pointer, how to declare and initialize pointer.

(8 + 4 + 4 = 16 marks)

(a) Difference between static and dynamic memory allocation.

(b) What is recursion ? Write a program to find no. of moves using Tower of Hanoi.

(8 + 8 = 16 marks)

(a) Explain the following :

    (i) rewind ( ).   (ii) ftell ( ).

    (iii) fseek ( ).   (iv) feolf ( ).

(b) How to open text file in three different modes ?

(c) Mention file operations.

(8 + 6 + 2 = 16 marks)

(a) Difference between linear search and binary search.

(b) Write a C-program to demonstrate binary search.

(c) Define the following :

    (i) Bubble sort.   (ii) Selection sort.

(4 + 8 + 4 = 16 marks)

(a) Write a C program to demonstrate quick sort.

(b) Explain the operations performed on stack.

(8 + 8 = 16 marks)

(a) Define Queue. Explain different types of Queue.
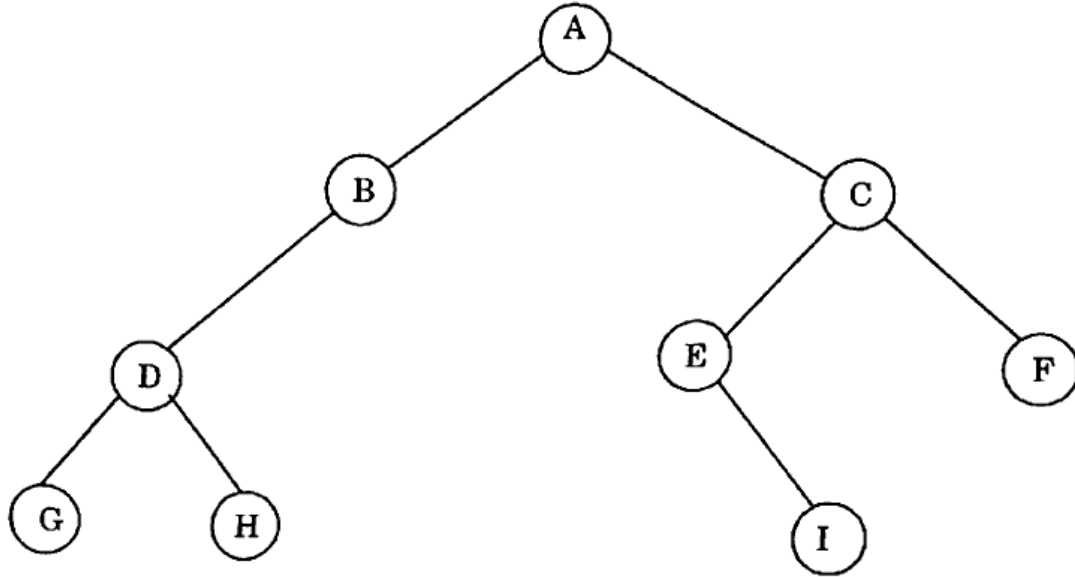
(b) Convert the following infix to postfix expression and evaluate using values A = 4, B = 2, C = 2, D = 4, E = 2, F = 5 :

    (i) $((A + B + C) + D / F)$.   (ii) $A / B - (C + D) \wedge E * F$.

(8 + 8 = 16 marks)

Turn over

7. (a) Explain singly linked list operations such as insertion, deletion and searching.

   (b) Traversa the following tree inorder, preorder, postorder :

(8 + 8 = 16 mar

8. Write a short notes on any *four* :

   (a) Dynamic memory allocation functions.

   (b) Circular queue.

   (c) Merge sort.

   (d) Define Binary tree and complete binary tree.

   (e) Insection sort.

(4 × 4 = 16 mar