Total No. of Questions – [8]   Total No. of Printed Pages 2

G.R. No.

Paper code U 229-135 (BE- F&FS)
DECEMBER 2019/ENDSEM - Backlog Exam
S. Y. B. TECH. (E&TC) (SEMESTER - II)

COURSE NAME: Data Structures   **COURSE CODE: ETUA22175**

Instructions to Candidates:
1) Answer Q.1, Q.2, Q.3, Q.4, Q.5 or Q.6, Q.7 or Q.8
(PATTERN 2017)

Time: [**2 Hours**]   [Max. Marks: **50**]

Q. 1 a) Write a recursive function for finding factorial of a number.   6 M

OR

b) Write a C program for Swapping of two numbers using call by   6 M
reference.

Q. 2 a) Explain linear search algorithm.   6 M

OR

b) Sort the following numbers using merge sort.   6 M
[38,27,43,3,9,82,10]

Q. 3 a) Write steps to delete a node at front position in a SLL   6 M

OR

b) State advantages of linked list over arrays.   6 M

Q. 4 a) Write applications of queue.   4 M

OR

b) Write a function for POP operation in stack using array.   4 M

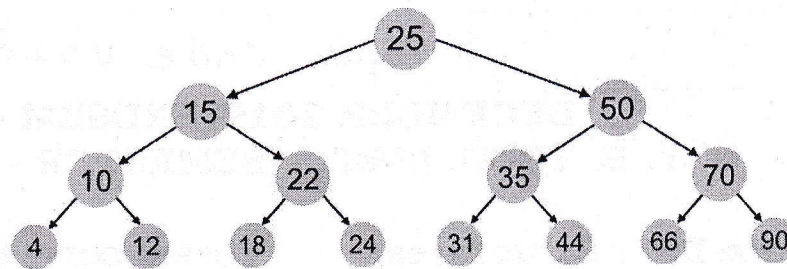Q. 5 a) Explain Binary Search tree with example.   6 M
b) Write a recursive function for inorder traversal of binary   4 M
search tree.
c) Construct a binary tree using following tree traversals   4 M
Preorder: A,B,D,E,C,F
In-order: D,B,E,A,F,C

OR

Q. 6 a) Write following tree traversals for given tree.   6 M
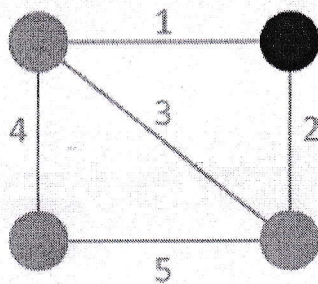
1|2

1) Pre-order(2)In-order(3)Post-order

b) Write short note on height balanced tree. 4 M

c) Create BST from given data [90,50,20,75,25,5,150,175,95] 4 M

Q. 7 a) Write a C function for Depth first search traversal of graph. 6 M
b) Find minimum spanning tree for the given graph using Prim's 4 M
algorithm.

c) Define the following 4 M
   1. Minimum Spanning Tree
   2. Graph

OR

Q. 8 a) Explain adjacency matrix and adjacency list representation 6 M
with suitable example.
b) Write Breadth first traversal algorithm for given graph. 4 M

c) List the drawbacks of linear data structure. 4 M

2|2