Total No. of Questions – [06] Total No. of Printed Pages: 2

G.R. No.	

DECEMBER 2021 - ENDSEM EXAM

S. Y. B. TECH. (E&TC) (SEMESTER - I)

COURSE NAME: DATA STRUCTURES

COURSE CODE: ETUA21203

(PATTERN 2020)

Time: [1 Hour] [Max. Marks: 30]

(*) Instructions to candidates:

1) **Answer Q.1 OR Q.2, Q.3 OR Q.4, Q.5 OR Q.6.**
2) **Figures to the right indicate full marks.**
3) **Use of scientific calculator is allowed.**
4) **Use suitable data where ever required.**

Q.1 a Translate infix expression into its equivalent post fix expression: [4]

A*(B+D)/E-F*(G+H/K)

Q.1 b Compose C++ functions to perform all the operations in a stack using linked list. [6]

OR

Q.2 a Convert the postfix form of the following infix expression [4]

K+L-M*N+(O^P)*W/U/V*T+Q

Q.2 b Compose C++ function to perform all the operations in a queue using linked list. [6]

Q.3 a Build a recursive function in C++ for in-order and post order traversal of BST. [4]

Q.3 b Construct a binary tree using following tree traversals [6]

Post-order: D, F, E, B, G, L, J, K, H, C, A

In-order: D, B, F, E, A, G, C, L, J, H, K

OR

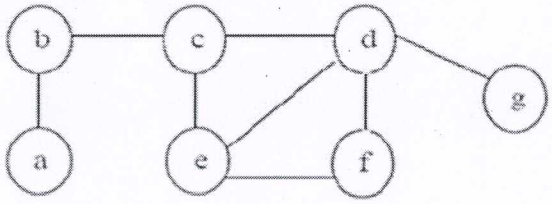
Q.4 a Compare memory representation of binary tree with suitable example. [4]

Q.4 b Create expression tree from given expression. [6]

Infix: (8-5) * ((4+2) / 3)

Postfix: 85 – 42 + 3 / *

Q.5 a Predict adjacency list for given graph list its advantages and disadvantages [4]

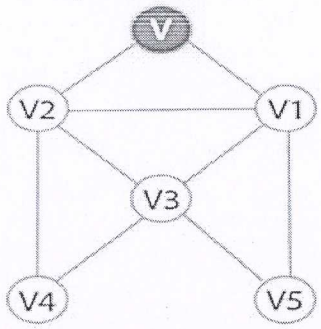


Q.5 b Define with example [6]

1) connected graph
2) path
3) spanning tree

OR

Q.6 a Execute Breadth first traversal for given graph stepwise. [4]



Q.6 b Predict minimum spanning tree for the given graph using kruskal algorithm stepwise. [6]