Total No. of Question : [4]

Registration No. :

Programme Name : Bachelor of Electronics and Telecommunication Engineering
Regular S.Y.B.Tech. ESE (A.Y. 2023-24) Sem. III Nov.2023
III SEMESTER (2022 BATCH)
201ETL204-Data structures and algorithms (TH)

Duration : [11:00 AM - 01:00 PM]
Date : 30 Nov, 2023
Day : Thursday

Marks : 50

Instructions :

(Q1) **All Questions are compulsory.** [20.0]

    (1.1) Compare between linear & nonlinear data structure. [6.0]

        CO :- 1
        Blooms Taxonomy :- Analyze

    (1.2) Write algorithm for bubble sort & analyze its time complexity. [7.0]

        CO :- 2
        Blooms Taxonomy :- Apply

    (1.3) Write & analyze an algorithm for insertion of a node after a given node in a linked list. [7.0]

        CO :- 3
        Blooms Taxonomy :- Analyze

(Q2) **All Questions are compulsory.** [10.0]

    (2.1) What is POSTFIX notation? Write algorithm for evaluation of postfix expression. [4.0]

        CO :- 2
        Blooms Taxonomy :- Apply

    (2.2) Sketch and explain the representation of queue using array. [6.0]

        CO :- 2
        Blooms Taxonomy :- Apply

OR [2.2 / 2.3]

    (2.3) Sketch a diagram for enqueue operation & write its algorithm. [6.0]

        CO :- 2
        Blooms Taxonomy :- Apply

(Q3) **All Questions are compulsory.** [10.0]

(3.1) Sketch a diagram of strictly binary tree & explain in brief [3.0]

CO :- 4
Blooms Taxonomy :- Understand

OR [3.1 / 3.2]

(3.2) Sketch a diagram of extended binary tree & explain in brief. [3.0]

CO :- 4
Blooms Taxonomy :- Understand

(3.3) Write & analyze the algorithm for 'insert' operation in a binary search tree with suitable [7.0] diagram.

CO :- 4
Blooms Taxonomy :- Understand

(Q4) **Attempt any two out of three questions.** [10.0]

(4.1) Write & analyze BFS(breadth first search) algorithm on graph. [5.0]

CO :- 4
Blooms Taxonomy :- Understand

(4.2) What is hashing? Describe the mechanism with suitable diagram. [5.0]

CO :- 4
Blooms Taxonomy :- Understand

(4.3) Compare between separate chaining & open addressing. [5.0]

CO :- 4
Blooms Taxonomy :- Understand

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