Total No. of Questions : 5]

SEAT No. :

PE-3432

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S.Y. B.Sc.
COMPUTER SCIENCE
CS-201-MJ-T : Data Structure - I
(Revised 2024) (Semester - III)

Time : 2 Hours] *[Max. Marks : 35*

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Figures to the right indicate full marks.***

Q1) **Attempt any Eight of the following.** **[8 × 1 = 8]**

a) What is Top of the stack.

b) Define the term priority queue.

c) Write node structure of Doubly linked list.

d) Why there is a need of data structure.

e) List operations performed on queue.

f) Write time complexity of insertion sort.

g) Compare singly linked list with circular singly linked list.

h) What is the term stack overflow.

i) List the advantages of Divide & Conqur strategy.

j) List the measures used to calculate performance analysis of an algorithm.

Q2) **Attempt any Four of the following.** **[4 × 2 = 8]**

a) Define ADT? List advantages of ADT.

b) Explain diagramatic representation of double ended queue.

c) List applications of stack.

d) What is Generalized linked list.

e) Define the term :

i) Internal sorting

ii) Comparison based sorting

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Q3) **Attempt any Two of the following.** **[2 × 4 = 8]**

a) Write a 'C' function to concatenate two singly linked list.

b) Write a 'C' function to sort an array using selection soft.

c) Write a 'C' program to check whether the string is palindrome or not using stack.

Q4) **Attempt any Two of the following.** **[2 × 4 = 8]**

a) Differentiate between Linear Search and Binary search.

b) Explain the structure and working of circular doubly linked list with diagram.

c) Convert the following infix expression to postfix expression by using stack. a|b–c*d +e

Q5) **Attempt any One of the following.** **[1 × 3 = 3]**

a) Explain various Asymptotic notations.

b) Write a note on circular Queue.

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