

Total No. of Questions : 51

SEAT No. :
[Total No. of Pages : 2]

PE-3432

[6502]-103
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 & Conquer 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 diagrammatic 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

P.T.O.

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 sort.
- 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.

[6502]-103

2

