

Total No. of Questions : 5]

P1288

SEAT No. :

[Total No. of Pages : 2

[6055]-101

S.Y.B.Sc. (Computer Science)

CS - 231 : DATA STRUCTURES AND ALGORITHMS - I
(2019 Pattern) (Semester - III) (23121)

Time : 2 Hours]

[Max. Marks : 35

Instructions to the candidates:

- 1) All questions are compulsory.
- 2) Figures to the right indicates full marks.
- 3) Neat diagrams must be drawn whenever necessary.

Q1) Attempt any EIGHT of the following.

[8×1=8]

- a) Define Data Object.
- b) What are the advantages of ADT?
- c) Write any two applications of Queue.
- d) What is top of the stack?
- e) State True or False. "Queue Follows Last in First out (LIFO) Order".
- f) Write the time complexity of merge sort.
- g) What is stack underflow?
- h) Define space complexity.
- i) What is circular queue?
- j) Which data structure is used in recursion?

Q2) Attempt any four of the following.

[4×2=8]

- a) What are different asymptotic notations?
- b) List the operations performed on dequeue.
- c) Write the postfix expression of the following $(A+B) * (C-D)$.
- d) Write node structure of singly linked list.
- e) Give any two applications of stack.

P.T.O.

Q3) Attempt any TWO of the following: [2×4=8]

- a) Write a 'C' function for deleting element from singly linked list.
- b) Sort the following elements using insertion sorting method.
25, 15, 45, 85, 75, 55, 35, 65.
- c) Write a 'C' function to reverse singly linked list.

Q4) Attempt any two of the following: [2×4=8]

- a) Explain with example - Generalized linked list.
- b) Write 'C' function for implementing Linear search algorithm.
- c) Evaluate the following postfix expression $AB * C$ - (Let $A = 5$, $B = 6$, $C = 4$).

Q5) Attempt any one of the following: [1×3=3]

- a) Write a short note on priority queue.
- b) Define the following terms.
 - i) Time complexity.
 - ii) Doubly Ended Queue.

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