Total No. of Questions : 5]

SEAT No. :

P1288

[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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