April 2014

कण - 089

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COMPUTER SCIENCE PAPER - I : CS - 231
Data Structure - I (New)
(23245)

P. Pages : 3

Time : Two Hours **Max. Marks : 40**

Instructions to Candidates :
1. Do not write anything on question paper except Seat No.
2. Answer sheet should be written with blue ink only. Graph or diagram should be drawn with the same pen being used for writing paper or black HB pencil.
3. Students should note, no supplement will be provided.
4. All questions are compulsory.
5. Figures to the right indicate full marks.

1. Attempt **any eight.** **8**

a) What is an algorithm ?

b) Which of the following case does not exist in complexity.
   i) Best case
   ii) Worst case
   iii) Average case
   iv) Null case

c) Which data structure allows deleting data elements from front and inserting at rear ?
   i) Stacks
   ii) queues
   iii) deques
   iv) none of these.

d) Which of the following data structure is non-linear type ?
   i) Strings
   ii) Lists
   iii) Stacks
   iv) None of these.

e) Which of the following type is primitive data structure ?
   i) struct
   ii) array
   iii) class
   iv) int

f) The data structure required to evaluate a postfix expression is
   i) queue
   ii) stack
   iii) array
   iv) linked list

g) Enlist the types of linked list.

h) What is file?

i) What is node?

j) Minimum number of queues needed to implement the priority queue is
   i) one
   ii) two
   iii) eight
   iv) none

2. Attempt **any four.** **8**

a) What is data structure?

b) What is dynamic storage allocation?

c) What is deque?

d) Define time complexity.

e) What is a sequential file?

f) Enlist format conventions of an algorithm.

3. Attempt **any two.** **8**

a) Explain space complexity of an algorithm.

b) Write an algorithm to delete an element from queue.

c) Explain doubly linked list.

4. a) Attempt **any two.** **6**

i) Convert the following infix expression to postfix expression using stack.
A – B/(C * D$E)

ii) Write a short note on index – sequential file.

iii) Represent following polynomial using linked list
$5x^3 + 8x^2 + 9x + 8$

b) Compulsory question : **2**

What is Multiple queues?

5. Attempt **any one.** **8**

a) Write an algorithm for the following.

i) To push an element onto a stack.

ii) To search a given element into singly linked list.

b) Explain the following :

i) Circular queue and its advantage over linear queue.

ii) Generalized list.

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