Seat Number

Nov-2016

0109

काठ - 006

COMPUTER SCIENCE PAPER - I : CS - 231
Data Structure - I
(232401)

P. Pages : 3

Time : Two Hours **Max. Marks : 60**

Instructions to Candidates :

1. Do not write anything on question paper except Seat No.
2. Graph or diagram should be drawn with the black ink 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. A) Attempt **any six** multiple choice. **6**

a) Which of the following occupies more memory with same number of elements?
   i) Array ii) Singly linked list
   iii) Doubly linked list iv) Queue

b) In ---------- file stored on tape, it is not possible of rewrite records.
   i) Serial ii) Direct
   iii) Sequential iv) Index

c) The Average case occur in linear search algorithm.
   i) Item is somewhere in the middle of the array.
   ii) Item is not in the array at all.
   iii) Item is last element in the array.
   iv) Item is last element or is not these at all.

d) Prefix notation is also known as.
   i) Reverse polish notation ii) Reverse natation
   iii) Polish reverse natation iv) Polish natation

e) A circular queue is implemented using an array of size 10 (Ten), the array index starts with 0; front = 6, Rear = 9. The insertion of next element takes place at the array index.
   i) 10 ii) 9
   iii) 7 iv) 0

f) The prefix expression for $a * (b + c) / e - f$ is.

i) $/ * a + bc - e - f$ ii) $- / * + abcef$

iii) $- / * a + bce$ iv) $abcef * / -$

g) A priority queue does not follow ---------- rule strictly.

i) FIFO ii) LIFO

iii) LILO iv) FILO

h) Header linked list in which last node contains the null pointer is called -- ---------.

i) Grounded header list ii) Circular header list

iii) General header list iv) Doubly linked list

B) Attempt **any six.** 6

a) What is linked list? With its structure.

b) List the operations of queue.

c) Define – Item, Record, file.

d) Convert infix to postfix $\rightarrow (A + B) * (C + D)$

e) Define stack space.

f) What do you mean by traversal?

g) Recursive problems uses which data structure?

h) Find the location of element I in single dimension array.

2. Attempt **any six.** 12

a) Explain processing of sequential file.

b) List steps to delete a node at the beginning (Singly Linked list).

c) Explain condition for stack underflow.

d) What are limitations of linear queue?

e) List steps for correctness of algorithm.

f) Define linear data structure.

g) Evaluate postfix expression 23 * 4 *.

h) Define – bucket, bucket capacity.

3. Attempt **any four.** 12

a) List steps to insert a node at the end in doubly linked list.

b) Explain Direct file.

c) Write an algorithm for PUSH () operation.

d) Explain with example – Active operation and Book keeping operation.

e) Differentiate static and dynamic memory allocation.

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

4. Attempt **any three.** 12

a) Write an algorithm to insert a node at the beginning in a circular linked list.

b) Explain variable size multiple stack. (Non fixed size stack)

c) Write short note on priority Queue.

d) Evaluate : 6 5 7 + * 3 8 2 / + *.

e) Differentiate stack and Queue.

5. Attempt **any two.** 12

a) Write short note on space complexity of an algorithm.

b) Explain polynomial manipulation.

c) Explain.
   i) Fixed size multiple Queue.
   ii) Dequeue.

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