* D P P - 5 7 0 6 *

DPP-5706

M.C.A. (Sem. II) Examination

April/May - 2016

Paper-202 : Data Structures

(Old & New Course)

Time : **3** Hours] [Total Marks : **70**

Instruction :

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :
☛ **M.C.A. (SEM. II)**

Name of the Subject :
☛ **PAPER-202 : DATA STRUCTURES (OLD & NEW)**

☛ Subject Code No. : **5 7 0 6** ☛ Section No. (1, 2,.....) : **Nil**

Seat No. :

Student's Signature

1 Do as directed : **14**

(1) Define graph.

(2) What are primitive data structures ? Give examples.

(3) What will be the address of the element A (i, j) in an array, where data is stored as column major with m rows and n columns ?

(4) Define stack. Write at least two applications of stack.

(5) What is the main disadvantage of circularly linked list over singly linked list ?

(6) Define Binary Tree.

(7) Define Path. Give an example for the same.

2 Do as directed : **14**

(a) Write an algorithm to convert parenthesized infix string to reverse polish notation. **7**

OR

(a) Write algorithms for following : **7**

(1) Delete an element from singly link list

(2) Delete an element from doubly link list.

(b) Translate the infix string a+b * c–d / e*h ^ i ^ j into Reverse Polish expression and show the stack tracing. **7**

3 Do as directed : **14**

(a) Write an algorithm to insert and delete a node from a circular queue. 7

OR

(a) Construct an Expression Tree for the expression A*B+C–D/F+X*Y. Give post-order traversal of Expression Tree. 7

(b) Write short note on threaded storage representation of binary tree. 7

4 Do as directed : **14**

(a) What do you mean by divide and conquer method ? Explain Merge Sort as divide and conquer algorithm. 7

OR

(a) What are the various techniques for collision-resolution ? Explain in detail. 7

(b) Explain in brief time complexity of an algorithm. 7

5 Do as directed :

(a) Construct AVL tree for the following set of months : March, May, August, April, January, December, July, February, June, October, September. 7

(b) Using heap sort, sort the following data: 7

42, 23, 74, 11, 65, 58, 94, 36, 99, 87.