K18P 0757

Reg. No. : ....

Name : ....

Second Semester M.C.A. Degree (Regular/Supplementary/Improvement) Examination, July 2018
(2014 Admission Onwards)
MCA2C08 : DATA STRUCTURES AND ALGORITHMS USING C++

Time : 3 Hours   Max. Marks : 80

SECTION – A

Answer **any ten** questions. **Each** question carries **three** marks.   (10×3=30)

1. Define class. Write the syntax for class creation.

2. What is inline function ? How is it different from other function ?

3. What are objects ? How to declare an object ?

4. Define polymorphism. How to achieve polymorphism ?

5. What are the uses of manipulators ?

6. Define ADT. List the different ADTs.

7. List the difference between normal queue and circular queue.

8. Define the various asymptotic notations.

9. List the difference between ordinary tree and binary search tree.

10. Compare height and level of a tree with an example.

11. Define graph. What are the uses of graph ?

12. Compare insertion and selection sort.

SECTION – B

Answer **all** questions. **Each** question carries **ten** marks.　　　　　　(5×10=50)

13. a) Explain the features of object oriented programming language.　　　　10

　　　　OR

　　b) What is function overloading and constructor overloading ? Explain both using an example.　　　　10

14. a) Explain each type of inheritance in C++ with example.　　　　10

　　　　OR

　　b) Explain the two ways of achieving polymorphism with example.　　　　10

15. a) Write algorithms to perform create, add, delete and print nodes in singly linked list.　　　　10

　　　　OR

　　b) Write algorithm for queue and circular queue.　　　　10

16. a) Explain the various tree traversals with examples.　　　　10

　　　　OR

　　b) Demonstrate creation binary search tree and search a specific node in it.　　　　10

17. a) Write the merge sort algorithm and sort the following using the merge sorting technique : 78, 45, 12, 34, 56, 90, 47.　　　　10

　　　　OR

　　b) Write Prim's algorithm and demonstrate it with an example.　　　　10

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