SEAT No._____

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SARDAR PATEL UNIVERSITY
Master of Computer Applications (MCA)
Semester – II External Examination
PS02CMCA22 (Data Structures and Advanced Programming Concepts)
10th April, 2019, Wednesday

Time: 10:00 a.m. to 1:00 p.m.

Max Marks: 70

Q-1 Choose the most appropriate option for each question: [8]

1. A data structure that contains not only data field but also contain pointer field is known as __

   A. Queue   B. Link list
   C. Tree   D. Stack

2. What should be the value of rear (end) if the queue is full?

   A. MAX + 1   B. 0
   C. MAX - 1   D. -1

3. Which expressions are also regarded as ' Reverse Polish Notations '?

   A. Postfix   B. Prefix
   C. Infix   D. All of these

4. Which among the following belongs to the category of a Pre-order Traversal?

   A. Root -> Left -> Right   B. Right -> Left -> Root
   C. Left -> Right -> Root   D. Root -> Right -> Left

5. In multilevel inheritance, constructors are executed in the order of_____.

   A. inheritance   B. polymorphism
   C. abstraction   D. None of these

6. D The members in the beginning of class without any access specifier are _____ by default.

   A. Default   B. Private
   C. Public   D. Protected

7. _____ function is used to specify the required field size for displaying an output value.

   A. sizeof()   B. size()
   C. width()   D. length()

8. The mechanism of binding the functions to the class to which they belong is done by _____ operator.

   A. Relational   B. Logical
   C. Unary   D. Scope Resolution

(P.T.O.)

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Q-2 Answer the following questions (Any Seven):

1. Explain primitive data types.
2. Give the difference between sequential and random file organization.
3. Explain Binary tree.
4. Explain multi dimensional array.
5. Define the following: 1) Class   2) Objects
6. What is a friend function?
7. List the features of object oriented programming.
8. Differentiate between the following: Static binding and Dynamic binding
9. Explain exceptions.

Q-3 Answer the following questions:

A. What is algorithm complexity? Explain logarithmic and quadratic complexity with example. [6]
B. Explain Insert and Delete operation of Circular Queue. [6]

OR

B. What is stack? Explain Push and Pop operation with example. [6]

Q-4 Answer the following questions:

A. Explain fixed length and variable length record in file structure. [6]
B. Write a note on B+ Tree. [6]

OR

B. Briefly explain inverted list. [6]

Q-5 Answer the following questions:

A. Explain Constructors Overloading with code snippet. [6]
B. Discuss different output formatters available in C++ programming language. [6]

OR

B. Write a short note on input and output streams available in C++ programming language. [6]

Q-6 Answer the following questions:

A. Explain the concept of virtuality in destructors with a C++ Program. [6]
B. Write a short note inheritance. List and explain different types of inheritances. [6]

OR

B. What is a friend function? Write a program for binary operator overloading with the [6] concept of friend function.

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