COMPUTER SCIENCE
PAPER - I (D-9)

| Time : 3 Hours | 4 Pages | Max. Marks : 50 |

Instructions :   (1) *All questions are compulsory.*
(2) *Figures to the right indicate full marks.*
(3) *Use of any type of calculator not allowed.*
(4) *Draw a neat diagram whenever necessary.*

1.   Select the correct alternative and rewrite the following :

(a)   _____ is variable that holds memory address of another variable.   **1**

   (i)   Pointer

   (ii)   Array

   (iii)   Integer

   (iv)   Class

(b)   Maximum number of nodes in a binary tree of depth 6 are _____   **1**

   (i)   64

   (ii)   63

   (iii)   31

   (iv)   127

(c)   A program under execution which competes for CPU time and other resources is called _____ .   **1**

   (i)   Process

   (ii)   Context Switching

   (iii)   Multiprogramming

   (iv)   Memory Management

(d) Ability to takes more than one form is called _____. 1

    (i) Inheritance

    (ii) Polymorphism

    (iii) Class

    (iv) Data binding

(B) Answer **any two** of the following :

    (a) What is Traversing an Array ? Write algorithm for Traversing a linear array. 3

    (b) Enlist the basic data types used in C++ with size of data in terms of bytes for each. 3

    (c) Give any six features of Linux Operating System. 3.

2. (A) Answer **any two** of the following :

    (a) Write three advantages and disadvantages of HTML. 3

    (b) Explain following concepts related to object oriented programming : 3

        (i) Objects.

        (ii) Class

        (iii) Data Encapsulation

    (c) What is Record ? How records are represent in memory using array ? 3

(B) Answer **any one** of the following :

    (a) Describe how member functions of class can be defined outside class definition and inside class definition.

    (b) Write the name of one operating system based on GUI. Explain any three components of GUI.

3. (A) Answer **any two** of the following :

    (a) What is Data Structure ? Explain Linear and Non-linear data structure with examples.

    (b) Explain friend function in C++ with examples.

    (c) Define following process states in operating system :

        (i) Ready State

        (ii) Running State

        (iii) Block State

(B) Answer **any one** of the following :

    (a)   What is Linked List ? How linked list represent in memory ?   **4**

    (b)   What is Operator Function ? Describe the syntax of an operator function. Explain the difference between operator function as member function and friend function.   **4**

4.   (A)   Answer **any two** of the following :

    (a)   Explain any three elements of security in operating system.   **3**

    (b)   Define following terms with respect to Binary Tree :   **3**

        (i)   Root node

        (ii)   Leaf

        (iii)   Binary Tree

    (c)   What is Destructor ? Write any four characteristics of destructor function. **3**

    (B)   Answer **any one** of the following :

    (a)   What functions are performed by memory management of operating system ? State any three memory management systems.   **4**

    (b)   What is Inheritance ? Explain different types of Inheritance. (Any three) **4**

5.   Answer **any two** of the following :

    (a)   Implement a class temperature to convert degree. Fahernheit value to degree celcuis value.

        (Hint : (C/5 = F – 32/9) Where C is temperature in degree celcuis an

        F is temperature in Fahernheit degree)   **5**

    (b)   Write a program in C++ to accept a positive integer and display it's multiplication table.   **5**

        (Hint : if n = 5, then 5, 10, 15, 20 .... 50)

    (c)   Write an exact output of the following HTML code with font specifications in brackets :   **5**

        <HTML>

        <body>

        <UL>

        <LI> Connectivity devices

        <OL Type = "A" start = "5">

         modem

         HUB

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