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

1

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(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. 4

(b) Write the name of one operating system based on GUI. Explain any three components of GUI. 4

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

(a) What is Data Structure ? Explain Linear and Non-linear data structure with examples. 3

(b) Explain friend function in C++ with examples. 3

(c) Define following process states in operating system : 3

(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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