

DAY - 17

SEAT NUMBER

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2025

III

04

1100

V - 54

(E)

**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 _____.

- (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 ?

(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. Fahrenheit value to degree celcius value.
(Hint : $(C/5 = F - 32)/9$) Where C is temperature in degree celcius an F is temperature in Fahrenheit degree) 5
- (b) Write a program in C++ to accept a positive integer and display it's multiplication table.
(Hint : if n = 5, then 5, 10, 15, 20 50) 5
- (c) Write an exact output of the following HTML code with font specifications in brackets : 5
- ```
<HTML>
<body>

 Connectivity devices
<OL Type = "A" start = "5">
 modem
 HUB
```

- (B) Answer **any one** of the following :
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<UL>
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<OL Type = "A" start = "5">
<li> modem </li>
<li> HUB </li>
```