

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 _____. 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. 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. 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">
<li> modem </li>
<li> HUB </li>
```


 Topology

<UL Hpe = "circle">

</I> Bus Topology

 Ring Topology>

</body>

</HTML>

OR

5. Answer any two :

(a) Write the HTML code for following table :

5

Sales and Units

		Year		
		2020	2021	2022
Sales	Units	200	500	700
	Income	Rs. 20,000	Rs. 50,000	Rs. 70,000

(b) Write the HTML code for following :

5

HTML

– (Bold and Underline)

HTML is a Hyper Text Markup Language

C++

– (Text is Red Colour)

C++ is a object oriented programing language

H_2SO_4

$a^2 + b^2$

(c) Write C++ program to add two integer numbers by using function call by value. 5