

DAY - 13

SEAT NUMBER

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2014

III

12

1100

V - 234

(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) Draw neat diagram wherever necessary.

(4) Use of any type of calculator is **not** allowed.

(5) Due credit will be given for program with appropriate remarks or comment.

1. (A) State correct alternatives :

(a) Complete Binary Tree ( $T_n$ ) has  $n = 31$  nodes, then its depth is

(i) 2

(ii) 3

(iii) 4

(iv) 5

1

(b) Border Attribute is used in \_\_\_\_\_ tag.

(i) <HTML>

(ii) <P>

(iii) <TABLE>

(iv) <TITLE>

1

(c) \_\_\_\_\_ is not an Operating System. 1

(i) DOS

(ii) UNIX

(iii) C++

(iv) LINUX

(d) Most efficient search algorithm is \_\_\_\_\_. 1

(i) Binary

(ii) Reverse

(iii) Linear

(iv) Pointer

(B) Answer any two :

(a) Explain three process states of Operating System. 3

(b) What is a Record ? How it differs from an Array ? 3

(c) What is a Class ? How are member functions defined Inside and Outside the Class ? Give example. 3

2. (A) Solve any two :

(a) State functions of Memory Management. 3

(b) Explain Constructor and Destructor with the help of an example. 3

(c) Distinguish between Linear and Binary Search. 3

(B) Solve any one :

(a) Define a Block of Data. State necessary parameters to be provided to O.S. to access a Block of Data. 4

(b) What is Inheritance ? State different types of Inheritance with the help of diagrams. 4

3. (A) Solve any two :

(a) Distinguish between Worm and Virus. 3

(b) What is HTML ? State any three advantages. 3

(c) What is a Pointer ? Explain with the help of an example how address of a variable is accessed with the help of a Pointer ? 3

(B) Solve any one :

(a) What is a Reference Variable ? Explain Function Call by Reference with the help of an example. 4

(b) Write an algorithm for Binary Search. 4

4. (A) Solve any two :

(a) Define Binary Tree. Draw Binary Tree Diagram for the following expression : 3

$$(a^2 + 2ab + 5c) / (a + b)$$

(b) Write declarations of the following : 3

(i) An array of 8

(ii) An array of 8 pointers to floats

(iii) Prototype of function that returns pointer to float (no parameters).

(c) State features of LINUX Operating System. 3

(B) Solve any one :

(a) State any 8 rules for Virtual Functions in C++. 4

(b) What is a Linked List ? Explain how it is represented in memory with the help of an example ? 4

5. Solve any two :

(a) Write a program in C++ to find sum of contents of an array with the help of a Pointer. 5

(b) Implement a Class Circle. Include a constructor in it which accepts value of radius from user. Include two more functions in it, one of which calculates area and circumference and the other prints answers. 5

(c) Write exact output of the following HTML Code with Font Specifications in bracket : 5

<HTML>

<BODY>

<H2> My COUNTRY </H2>

<HR> <BR>

<H1 ALIGN = "CENTER"> INDIA

</H1> <BR>

```

<UL> IS
  <LI> GREAT
  <LI> BEAUTIFUL
  <LI> LOVING
</UL>
Here people care for each other
</BODY>
</HTML>

```



```

while (n1 != n2)
{
  if (n1 > n2)
    n1 = n1 - n2;
  if (n2 > n1)
    n2 = n2 - n1;
}
GCD = n1;

```

OR

5. Solve any two :

- (a) Write a C++ Program to input a word (max. length 20 characters) from user and print each of its characters on new line in reverse order. 5
- (b) Write a C++ Program to find the GCD (Greatest Common Divisor) of two numbers entered by User. 5
- (c) Write an HTML Code to display the following table on Web Page : 5

Record

Year	Students		
	Boys	Girls	Total
2007	519	710	1229
2008	800	925	1725

