| 2023 | III | 14 | 1100 | **V – 554** | (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 neat diagram wherever necessary.*
(5) *Header files and comments in C++ program are not necessary.*

1. (A) Select the correct alternative and rewrite the following :

(a) Wastage of memory space within the partition is called as

   _____ . 1

   (i) Internal fragmentation
   (ii) External fragmentation
   (iii) Compaction
   (iv) Segmentation

(b) Data items that are divided into subitems are called as _____ . 1
   (i) Group item
   (ii) Elementry item
   (iii) Nodes
   (iv) Arrays

(c) When a member function is defined inside the class, then it is treated
   as _____ function. 1
   (i) Inline
   (ii) Outline
   (iii) External
   (iv) Virtual

(d) Long form of HREF is _____.　　　　　　1

(i) Horizontal Reference

(ii) Hypertext Reference

(iii) Hyperlink Reference

(iv) Hypermedia Reference

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

(a) Define following terms regarding data structure :　　3

(i) Entity

(ii) Group item

(iii) Elementary item

(b) What is Binary Tree ? Draw a binary tree diagram of following mathematical expression :　　3

$E = (a^2 + bc^2) / d$

(c) Explain the use of video RAM. Explain data byte and attribute byte.　3

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

(a) Explain functions of each of following components of GUI :　　3

(i) Title bar

(ii) Scroll bars

(iii) Minimize and Maximize or Restore button

(b) State any six principal advantages of object oriented programming.　3

(c) Explain page memory management system with a suitable Page Map Table (PMT).　　3

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

(a) Define following :　　4

(i) Track and Sector

(ii) Seek time

(iii) Transmission time

(iv) Rotational delay

(b) Write an algorithm for bubble sort with suitable example.　　4

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

    (a) What is Class ? Explain general form of class declaration.   3

    (b) Which are three main areas in O.S. divides it's services ? Write example of each.   3

    (c) What is Computer Worm ? Explain mode of operation of computer worm.   3

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

    (a) Write any eight rules for operator overloading.   4

    (b) What is Searching ? Explain binary search algorithm with example.   4

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

    (a) What is HTML ? State it's two advantages and disadvantages.   3

    (b) Differentiate between Class and Object.   3

    (c) Explain following tages of html with example :   3

        (i)   <Hr>   https://www.maharashtrastudy.com

        (ii)   <PRE>

        (iii)

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

    (a) Write functions of each of followings :   4

        (i)   ifstream

        (ii)   ofstream

        (iii)   filebuf

        (iv)   fstream

    (b) Explain following tages of html with example :   4

        (i)   <B>

        (ii)   <UL>

        (iii)   <sup>

        (iv)   <img>

5. Answer **any two** of the following :
   (a) Write a C++ program which finds fibonacci series of 'n' terms. 5
   (b) Write a C++ program to find factorial of a number during execution by using constructor function. 5
   (c) Write a html code to produce following output : 5

Years	Students		
	Boys	Girls	Total
2011	30	20	50
2012	45	35	80
2013	55	75	130
2014	75	95	170

Record

OR

5. Answer **any two** of following :
   (a) Write a C++ program to find entered number is armstrong number OR NOT armstong. 5
   (b) Implement a class average that accepts value of three float variables another function print( ) average of three numbers. 5
   (c) Write the exact output of following html program code with font specifications in bracket : 5

```
<html>
<body>
<Table border="2">
<TR> <TD Colspan = "2">
<H1 align = "center"> HSC Board Exam </H1>
</TD> </TR>
<TR> <TD> align = "center"><u> PAPER.I </u>
</TD>
<TD align = "center"> <u>PAPER-II </u>
</TD> </TR>
<TR> <TD> <P align="center"> <i> 50 marks <ii>
</P> </TD>
<TD align = "center"> <i> 50 marks <ii>
</TD>
</TR>
</Table>
</Body>
</HTML>
```

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