

T.I. MATRICULATION HIGHER SECONDARY SCHOOL, AMBATTUR
HALF YEARLY EXAMINATION - 2018
Class XI CS Scoring Key

MARKS: 70

I Choose the best answer**15 x 1 = 15**

1. _____ is an output device that is used to produce graphical output on paper using single color or multi color pens to draw pictures.
 a) OCR b) **Plotter** c) Laser printer d) Dot matrix printer
2. $110101011_2 = ?_{10}, ?_{16}, ?_8?$
 a) **$427_{10}, 1AB_{16}, 653_8$** b) $437_{10}, 11011_{16}, 653_8$ c) $420_{10}, 1B_{16}, 63_8$ d) $433_{10}, 1AB_{16}, 653_8$
3. To connect the hard disk drives and network connectors _____ port is used.
 a) Parallel b) VGA connector c) PS/2 d) **SCSI**
4. The Linux operating system was originated in _____ as a project of _____, university student of Finland?
 a) **1991, Linus Torvalds** b) 1989, Linus Torvalds
 c) 1897, Dennis Ritchie d) 1821, Ken Thompson
5. _____ option found only on laptop computers puts the computer in a low power mode after saving all running programs and opens windows on the machine's hard drive for a quick restart.
 a) Switch user b) Lock c) Sleep d) **Hibernate**
6. Ubuntu was conceived in 2004 by _____ a successful South African entrepreneur.
 a) **Mark Shuttleworth** b) G Polya c) E W Dijkstra d) Edward Jenner
7. By clicking on _____ icon, document preparation application in Ubuntu could be opened
 a) Libre Office Calc b) Libre Office Impress c) **Libre Office Writer** d) Trash
8. Stating the input property as input output relation is _____
 a) **Specification** b) Statement c) Algorithm d) Definition
9. A[] = "\nbook"; c = "\n"; Identify the data types.
 a) int, char b) **string/Char array, char** c) char, char d) string/char array, string/char array
10. $5.6e3 = ?$
 a) 56000 b) 0.056 c) **5600** d) 560
11. _____ non graphical character is used for getting a new line.
 a) \l b) **\n** c) \a d) \u
12. In order to use setw() _____ header file is to be included.

The smallest individual unit in a program is known as a Token or a Lexical unit. (1)

(Or)

These individual elements are collectively called as **Lexical units** or **Lexical elements** or **Tokens**.

C++ has the following tokens:Keywords, Identifiers, literals, operators and punctuators(1)

24. What is sequential flow and control flow of statements?

If the Statements are executed sequentially, the flow is called as sequential flow.(1)

In some situations, if the statements alter the flow of execution like branching, iteration, jumping and function calls, this flow is called as control flow.(OR)

The flow of control jumps from one part of the code to another segment of code. Program statements that cause such jumps are called as “**Control flow**”.(1)

III Answer(any 6) of the following(Q.No. 32 is compulsory)

6 x 3=18

25. Expand the process(i.e Refinement) of “Going to park in bicycle”

Any valid steps – 3

26. Write down the syntax and example of if statement

Syntax: (1 ½ m)

```
if (expression)  
true-block;  
statement-x;
```

Example – Any valid example – (1 ½ m)

27. Find the value of z where x=32;y=8;

i) $z=(x<3)\&\&(y>=7)$ Ans : 0

ii) $z=x\&y;$ Ans:0

iii) $z=x\<\<2;$ Ans: 128

iv) $z=x\%y;$ Ans: 0

v) $z=(x==3)\|(y==3)$ Ans: 0

vi) $z=y++;$ Ans: 8 (6 x ½ = 3)

28. Read the following snippet and write the output

a. `int a=3;float f=8;`

`cout<<sizeof(a*f);` Ans: 4

b. `m= (a>f)?a:f;`

`cout<<m;` Ans:8

c. `cout<<7%2;` Ans: 1

d. `int &temp=num;`
`num=20;` Ans: 2020
`cout<<num<<temp;`

e. `i=3;`
`do`
`{`
`cout<i;`
`i--;`
`}`
`While(i!=3);` Ans: 3

f. Is **2b** a valid variable name? Give reason.
2b is not a valid variable name. Variables cannot begin with numbers
(6 x 1/2 = 3)

29. Write a note on scanners.

Scanner: Scanners are used to *enter the information directly into the computer's memory*. This device works like a *Xerox machine*. The scanner *converts* any type of *printed or written information including photographs* into a *digital format*, which *can be manipulated* by the computer. (6 x 1/2 = 3)

30. Write a note on string literals in c++.

Sequence of characters enclosed *within double quotes* are called as *String literals*. *By default*, string literals are automatically added with a special character '`\0`' (**Null**) at the end. *Example*(6 x 1/2 = 3)

31. Write about a) Serial port b) Parallel port c) VGA connector

Serial Port: To connect the external devices, found in old computers.

Parallel Port: To connect the printers, found in old computers.

VGA Connector: To connect a monitor or any display device like LCD projector. (3x1= 3)

32. Write a note on FIFO process scheduling

FIFO (First In First Out) Scheduling: This algorithm is based on *queuing technique*. Technically, the process that *enters the queue first is executed first* by the CPU, followed by the next and so on. The processes are executed in the *order of the queue*. (3 x 1 = 3)

33. Convert 382_{10} into binary using Sum of Powers of 2 method.

101111110_2 (Only sum of powers method) (3)

IV. Answer all the questions in detail

5 x 5 = 25

34. Explain in detail about a) Monitor (or) Touch screen

b) Ink jet printer (or) Bar code reader and QR code reader

(1) Monitor: Monitor is the most *commonly used output device* to display the information. It looks *like a TV*. Pictures on a monitor are formed with *picture elements called PIXELS*. Monitors may either be Monochrome which display text or images in *Black and White or can be color*, which display results in multiple colors. There are many types of monitors available such as **CRT (Cathode Ray Tube)**, **LCD (Liquid Crystal Display)** and **LED (Light Emitting Diodes)**. The monitor works with the **VGA (Video Graphics Array) card**. The *video graphics card* helps the keyboard to communicate with the screen. It acts as an *interface between the computer and display monitor*. Usually the recent motherboards incorporate built-in video card.

The first computer monitor was part of the **Xerox Alto computer system**, which was released on March 1, 1973.

(OR)

Touch Screen: A touch screen is a *display device* that allows the user to interact with a computer *by using the finger*. It can be quite useful as an *alternative to a mouse or keyboard* for navigating a **Graphical User Interface (GUI)**. Touch screens are used on a wide *variety of devices* such as computers, laptops, monitors, smart phones, tablets, cash registers and information kiosks. Some touch screens use a *grid of infrared beams* to sense the presence of a finger instead of utilizing touch-sensitive input.

Inkjet Printers use *colour cartridges* which combined **Magenta, Yellow and Cyan inks** to create color tones. A **black cartridge** is also used for *monochrome output*. Inkjet printers work by *spraying ionised ink* at a sheet of paper. The speed of Inkjet printers generally range from **1-20 PPM** (Page Per Minute). They use the technology of *firing ink* by heating it so that it explodes towards the paper in bubbles or by using *piezoelectricity* in which tiny electric currents controlled by electronic circuits are used inside the printer *to spread ink in jet speed*. An Inkjet printer can spread *millions of dots of ink at the paper every single second*.

(OR)

Bar Code / QR Code Reader: A Bar code is a *pattern printed in lines of different thickness*. The Bar code reader *scans the information* on the bar codes *transmits to the Computer for further processing*. The system gives *fast and error free entry* of information into the computer. QR (Quick response) Code: The QR code is the *two dimension bar code* which can be *read by a camera* and processed to interpret the image (2 ½ + 2 ½)

(OR)

Do using signed binary arithmetic a) $25_{10} + 39_{10}$ b) $73_{10} - 54_{10}$.

a) 25

Conversion to binary – ½

8 bit form – ½

39

Conversion to binary – ½

8 bit form – ½

Addition – ½ Ans:1000000

b) 73

Conversion to binary – ½

8 bit form – ½

54

8 bit form – ½

2's complement - ½

Addition – ½ Ans:00010011

35. Explain in detail the different types of OS?

Single User Operating Systems

An operating system allows *only a single user* to perform a task at a time. It is called as a *Single user and single Task operating system*. For a user, a *task is a function* such as printing a document, writing a file to disk, editing a file or downloading a file etc. *MS-DOS* is an example for a single user and single task Operating System.

Multi-user Operating Systems

It is used in *computers and laptops* that allow same data and applications to be accessed by *multiple users at the same time*. The users *can also communicate with each other*. *Windows, Linux and UNIX* are examples for multi-user Operating System. (2 ½ + 2 ½)

(OR)

Write down all the features of Ubuntu.

- The desktop version of Ubuntu supports all normal software like Windows such as Firefox, Chrome, VLC, etc.
- It supports the office suite called LibreOffice.
- Ubuntu has in-built email software called Thunderbird, which gives the user access to email such as Exchange, Gmail, Hotmail, etc.
- There are free applications for users to view and edit photos, to manage and share videos.
- It is easy to find content on Ubuntu with the smart searching facility.
- The best feature is, it is a free operating system and is backed by a huge open source community. (First 4 features each 1 mark , the next 2 each ½ mark)

36. Explain in detail the 4 algorithm design techniques.

1, **Specification:** The *first step* in problem solving is to *state the problem precisely*. A problem is specified in terms of the *input given and the output desired*. The specification must also state the *properties of the given input, and the relation* between the *input and the output*.

2. Abstraction: A problem can involve a *lot of details*. Several of these details are *unnecessary for solving the problem*. Only a *few details are essential*. *Ignoring or hiding* unnecessary details and *modeling* an entity only by its *essential properties* is known as abstraction. For example, when we represent the state of a process, we select only the variables essential to the problem and ignore inessential details.

3. Composition: An algorithm is composed of *assignment and control flow* statements. A control flow statement *tests a condition* of the state and, *depending on* the value of the *condition, decides the next statement* to be executed.

4. Decomposition: We *divide the main algorithm into functions*. We construct each *function independently* of the main algorithm and other functions. Finally, we construct the *main algorithm using the functions*. When we use the functions, it is enough to *know* the *specification of the function*. It is *not necessary to know how the function is implemented*.

(2+1+1+1) (OR)

Write a C++ program to find the area of a rectangle.

Any valid program logic(Preprocessor directive- 1, declaration-1, input-1, process-1,output1)

37. Write the output of the following program

```
#include<iostream>
Using namespace std;
int main( )
{
int n;
cout<<"\nEnter a number:\n";
cin>>n;
if(n%2==0)
    Cout<<n<<"is even number";
else
    Cout<<n<<"is an odd number";
}
```

Output

Enter a number (2)

5 (1)

5 is even number(2)

(OR)

Explain in detail about while loop with explanation, syntax and example with its working.(i.e explain the program flow)

Explanation:

Entry check loop, Loop is executed only if the condition is true

Syntax

```
while ( Test expression )
{
    Body of the loop;
}
```

Example

(Explanation-2+Syntax - 1+Example – 1+Working-1)

38. Explain in detail about 3 methods of renaming files or folders (OR) any 2 methods of creating Folders

Renaming files or folders

Method 1

Using the FILE Menu

1. Select the File or Folder you wish to Rename.
2. Click File→ Rename.
3. Type in the new name.
4. To finalise the renaming operation, press Enter .

Method 2

Using the Right Mouse Button

1. Select the file or folder you wish to rename.
2. Click the right mouse button over the file or folder.
3. Select Rename from the pop-up menu.
4. Type in the new name.
5. To finalise the renaming operation, press Enter.
6. Shows that the folder "New Folder" is renamed as C++.

Method 3

Using the Left Mouse Button

1. Select the file or folder you wish to rename.
2. Press F2 or click the file or folder. A surrounding rectangle appears around the name.
3. Type in the new name.
4. To finalise the renaming operation, press Enter.

(Method I-2 m, Method 2- 2m, Method 3- 1 m)

(OR)

Method I:Creating files and folders

Step 1: Open Computer Icon.

Step 2: *Open any drive* where you want to create a new folder.

Step 3: Click on File→ New → *Folder*.

Step 4: A new folder is created with default name “New *folder*” .

Step 5: Type in the *folder name and press Enter key*.

Method II:

In order to create a folder in the d e s k top:

Step 1: In the Desktop, *right click* → *New* → *Folder*.

Step 2: A Folder appears with *default name* "New folder "

Step 3: *Type the name you want and press Enter Key.* (2 ½ + 2 ½)

(OR)

Explain in detail the difference between break and continue

Break

Break is used to **terminate** the execution of the loop.

It **breaks** the iteration.

When this statement is executed, control will come out from the loop and executes the statement immediate after loop.

Continue

Continue is not used to terminate the execution of loop.

It **skips** the iteration.

When this statement is executed, it will not come out of the loop but moves/jumps to the next iteration of loop.

(2+1+2)
