

Roll No. \_\_\_\_\_

Code : 112017-083-A

Please check that this question paper contains 7 questions and 11 printed pages.

**CLASS-XI**  
**COMPUTER SCIENCE**

**Time Allowed : 3 Hrs.**

**Maximum Marks : 70**

**General Instructions :**

*All the questions are compulsory.*

*The paper contains 7 questions.*

*Programming language used : C++*

| S. No. | Sub Part | Question   | Marks |
|--------|----------|--|-------|
| 1      | (a)      | Differentiate between Random Access Memory(RAM) and Read Only Memory (ROM).  | (2)   |
|        | (b)      | 1 Peta Byte = _____ MB.  | (1)   |
|        | (c)      | Expand the following<br>1. EPIC<br>2. OLED   | (1)   |
|        | (d)      | Convert the following:-<br>(i) $(79AE)_{16} = (?)_2$<br>(ii) $(10101.1010)_2 = (?)_{10}$   | (2)   |
|        | (e)      | Name any two Proprietary software's along with their application.  | (1)   |
|        | (f)      | Give one example each for the following:<br>(i) The system software that acts as an interface between user and the hardware.<br>(ii) It handles the storage, retrieval, and updating of data in a Computer system. | (1+1) |
|        | (g)      | Name the type of port which is used in devices like TV remote control.   | (1)   |

|   |   |         |
|---|---|---------|
| 2 | <p>(a) The following code has few errors. Identify the errors and mention their types:</p> <pre>#include&lt;iostream.h&gt; void main() {     int x=5, y=0;     x+y=x;     int d=x/y;     cout&gt;&gt;x; }</pre>   | (3)     |
|   | <p>(b) How many times the following loops will be executed:</p> <p>(i) <pre>int s=0,i=0; while(++i&lt;10)     s+=i++;</pre></p> <p>(ii) <pre>int s=0,i=0; do {     s+= + i; }while(i&lt;10);</pre></p> <p>(iii) <pre>for(int i=-12; i&lt;0; ++i) {     cout&lt;&lt;i+l&lt;&lt;endl; }</pre></p> | (1+1+1) |
|   | <p>(c) Draw a flowchart to print the sum of the square of natural numbers from 1-20.</p>  | (4)     |
|   | <p>(d) Indent the following program segment meaningfully</p> <pre>int j=1,i=2; do {j*=i; cout&lt;&lt;j;} while(++i&lt;5);</pre>   | (2)     |

|    |   |     |
|----|---|-----|
| 3. | <p>(a) Convert the following if-else to a single conditional statement: (2)</p> <pre> if(Basic&gt;= 10000)     HRA=0.30*Basic; else     HRA=0.10*Basic; </pre>  | (2) |
|    | <p>(b) Rewrite the following C++ code after removing all the syntax error(s) if present in the code. Make sure that you underline each correction done by you in the code. (2)</p> <p><b>Important Note:</b></p> <ul style="list-style-type: none"> <li>The corrections made by you do not change the logic of the program. include “iostream.h”</li> </ul> <pre> void main() {     int X,Y;     Z=5.2;     cin&gt;&gt;X&gt;&gt;Y;     cout&lt;&lt; The Numbers are'&lt;&lt;X&lt;&lt;Y&lt;&lt;endl;     cout&lt;&lt;Z; } </pre> | (2) |
|    | <p>(c) Write the corresponding C++ expression for the following : (2)</p> <p>(i) <math>Z = x^3 + y^3 - \frac{\sqrt{xy^2}}{2}</math></p> <p>(ii) <math>x = 2y - (p + Q)^2</math></p>   | (2) |
|    | <p>(d) Identify the type conversion (Implicit/Explicit) from the C++ statements listed below. Justify your answer. (2)</p>  | (2) |

|    |   |  |
|----|---|--|
|    | <p>(i) <code>int x; char b = 'p'; x = b; cout &lt;&lt; x;</code></p> <p>(ii) <code>cout &lt;&lt; (char)(toupper('q'));</code></p> <p>(e) What is the output of the following fragment of code? (2)</p> <pre>#include&lt;iostream.h&gt; void main () {     int X=10/5*2+2*4%8;     cout&lt;&lt; "X="&lt;&lt;X; }</pre> <p>(f) Construct the logical expressions to represent the following conditions: (2)</p> <p>(i) Fine is greater than or equal to 5000 but less than 7000</p> <p>(ii) Variable X is an upper case letter in the range of A to M.</p> <p>(iii) Variable Num is divisible either by 2 or 5</p> <p>(iv) X is not even but more than 75</p> <p>(g) Find the correct identifiers out of the following, which can be used for naming variable, constants, or functions in a C++ program: (2)</p> <p>Include, IstName, NeW, name.l, Cost*Qty, INT, Street one, do, While</p> |  |
| 4. | <p>(a) Observe the Program very carefully and write the name of those header file(s), which are essentially needed to compile and execute the following program successfully: (2)</p> <pre>void main() {     char CH, Str[20];     gets(Str);     CH=toupper(Str[0]);     cout&lt;&lt;CH;     cout&lt;&lt;strlwr(Str); }</pre>  |  |

- (b) Observe the following program and find out, which option or options out of (i) to (iv) will be expected output(s) from the program? What will be the minimum and maximum value assigned to the variable Series when the value of Count is 2? (2)

```
#include<iostream.h>
#include<stdlib.h>
void main()
{
    int Series, Pick[4]={25,90,30,45};
    randomize();
    for(int Count=0; Count<4;Count++)
    { Series=random(4-Count);
      cout<<Pick[Series]<<"@";
    }
} (i) 45@90@30@25@
(ii) 90@25@90@25@
(iii) 30@30@25@25@
(iv) 30@90@45@25@
```

- (c) Give reasons in favour of the use of switch-case construct for the following code, also rewrite the code using switch-case, (3)

```
char Infra;
cin>>Infra;
if(Infra = 'A')
    cout<< "Admin Block";
else if(Infra == 'C' || Infra == 'M')
    cout<< "Conference Hall";
else if(Infra == 'L')
    cout<< "Library";
else
    cout<< "Wrong Choice";
```



```

int a = 20;

void Comp(int &x, int y)
{
    a += x;
    y *= a;
    cout<<x<<'\t'<<y<<endl;
}

void main()
{
    int a = 40;
    Comp(::a, a);
    Comp(a, ::a);
    cout<<:: a<<'\t'<<a<<endl;
}

```

(c) Find the output of the given code snippet.

(2)

Note: Assume all required header files are already included in the program.

```

void change(char Text[],char c)
{
    for(int K=0;Text[K]!='\0';K++)
    {
        if(Text[K]>='F' && Text[K]<='L')
            Text[K]=tolower(Text[K]);
        else if(Text[K]=='E' || Text[K]=='e')
            Text[K]=c;
        else if(K%2==0)
            Text[K]=toupper(Text[K]);
    }
}

```

```

        else
            Text[K]=Text[K-1];
    }
}
void main()
{
    char oldtext[]="pOwERALone";
    change(oldtext,'%');
    cout<<"NEW TEXT "<<oldtext<<endl;
}

```

(d) Give the output of the following Program.

(2)

Note: Assume all required header files are already included in the program.

```

#define Terms 4
typedef int Credits[Terms];
void main()
{
    clrscr();
    Credits sam;
    sam[Terms-3]=40;
    sam[Terms-1 ]=80;
    sam[Terms-4]=20;
    sam[Terms-2]=60;
    for(int m=0;m<=3;m++)
        cout<<sam[m]<<endl;
}

```



6. (a) Write a function REVROW(int A[][5], int N, int M) in C++ to display the content of a two dimensional array, with each row content in reverse order. (3)

|    |    |    |    |    |
|----|----|----|----|----|
| 6  | 23 | 52 | 15 | 12 |
| 5  | 14 | 44 | 32 | 53 |
| 15 | 8  | 55 | 43 | 78 |

The function should display output as:

```
12 15 52 23 6
53 32 44 14 5
78 43 55 8 15
```

- (b) Write the definition of a function FixSalary(float Salary[], int N) in C++, which should modify each element of the array Salary having N elements, as per the following rules: (4)

| Existing Salary Values   | Required Modification in Value |
|--------------------------|--------------------------------|
| If less than 100000      | Add 30% in the existing value  |
| If >= 100000 and <200000 | Add 25% in the existing value  |
| If >=200000              | Add 15% in the existing value  |

Also display the updated array elements.

- (c) Write a program in C++ which accepts a string and encrypted as follows: (4)
- Replace all the vowels by @
  - Replace other characters by \$.

Display the encrypted string.

**For example:**

**Input String :** Sharing-is-Caring

**Output:** \$\$@\$@\$\$\$@\$\$\$@\$@\$

Q7. (a) Find the output of the following program:

(2)

```
#include<iostream.h>
struct Parcel
{
    int Length;
    int Breadth;
    int Height;
};
void Occupies(Parcel &M, int Y=10)
{
    M.Length+=Y;
    M.Breadth -=Y;
    M.Height ++;
    cout<<M.Length<< "x"<<M.Breadth<< "x";
    cout<<M.Height<<endl;
}
void main ()
{
    Parcel P1={100,50,150}, P2;
    ++P1.Length;
    P1.Breadth -=20;
    P1.Height +=P1 .Breadth;
    Occupies(P1);
    P2=P1;
    --P2.Length;
    P2.Breadth +=20;
    Occupies(P2);
}
```

(b) Consider the following structure of Compact Disk

(4)

```
struct Compact Disk
{
    char title [20];
    int duration;    // Duration in minutes
    float price;
    float rent;
    float capacity; // Capacity of a disk in MB, 720 MB being maximum
}
```

Define a function `char storage (Compact_Disk C)` to return 'Y' if the disk has storage capacity left otherwise it should return 'N'.

Write a program to input appropriate values in a structure instance.

Invoke the above mentioned function and print the message whether the disk can store more data or not.

