SAMPLE PAPER

 2017-18

GRADE XI - COMPUTER SCIENCE (083)

TIME: 3 hours MARKS: 70

**Q1.**

**a**.What is the pre processor directive in C++? **1**

**b**. Which header files are required for the following? **1**

 (i) rand( ) (ii) isupper()

**c**. Find the errors in the following C++ statements and recorrect them. **2**

 i. cout << ”p =” p;

 ii. return = a + b;

 iii. b + c = a;

 iv. cout << \n” Marks are: ” >> Marks;

**d**. Define the following with suitable examples**. 2**

 i. Tokens ii. Punctuators

**e.** Differentiate between string and character constant with examples. **2**

**f**. Write a program to find the sum of the following finite series: **2**

 Sum = $x+\frac{x^{3}}{36}+\frac{x^{5}}{56}+\frac{x^{7}}{76}+\frac{x^{9}}{96}+\frac{x^{11}}{116}$

**Q2.**

**a.** What will be the output of the following code snippet?  **2**

void main ( )

 {

int a = 6, b = 67;

 for ( int i =2; i >= 1; i--)

 cout << ”\n” << ++a << ’@’ << -- b << ‘@’ << ++b;

 cout << “\n” << (char) (b+1) << ‘@’ << a + 2 << ‘@ ’ << **++** b;

 cout << “\n” << sizeof(a) << ‘@’ << sizeof(char);

 getch ( );

}

**b.** Differentiate between break and continue statement. **1**

**c.** What are Actual and Formal parameters? Give suitable examples. **2**

**d.** What will be the output of the following code? **1**

 void main( )

{

 int z = 10;

 cout << “\n” ;

 do

 {

 cout << **++** z << ’**#**’ ;

 z ++;

 } while (z < 15);

getch();

}

**e. Observe the code and Give the output. 2**

int m=5;

void check();

void main( )

{ int m=20;

{

int m=10\*::m;

cout<<"m="<<m<<"::m="<<::m<<endl;

}

check();

cout<<"m="<<m<<"::m="<<::m<<endl;

check();

cout<<"::m="<<::m<<"m="<<m<<endl;

getch();

}

void check()

{

++m;

}

**f.** Define Null statement .What is size of Null? Give example of a null statement. Where are they used? **2**

**Q3.**

**a.** What output will be the following code fragment produce? (assume all header files are included) **2**

void main( )

{

int val, res, n=1000;

cin>>val;

res = n + val > 1750 ? 400:200;

cout<<res;

}

(i) if val=2000 (ii) if val=1000

**b.** Explain logical operators with suitable examples. Mention the precedence of logical operators. **3**

**c.** Explain data type conversions with example**. 2**

**d**. Write the corresponding C++ expressions for the following mathematical expressions: **1**

1. √ (a2+b2)
2. If x mod 2 is equal to 0, the print “ x is even” or print “ x is odd”.

**e.** Give the output of the following Boolean expression: **1**

If A = 30, B = 40, C =15, and D = 5.

a. ! A + C == B + D

b. ! (C + D == 20 || B! = 40)

**Q4.**

**a.** What is fall through in switch case? Give example. **1**

**b.** What is an exit and an entry controlled loop? Give examples**. 2**

**c.** In the following program, find the correct possible output(s) from the options:

Justify your answer. **2**

#include <stdlib.h>

#include <iostream.h>

#include <conio.h>

void main ( )

{

randomize ( );

char City[ ][10] = {"DEL","CHN","KOL","BOM","BNG"};

int Fly;

for (int I=0; I<3;I++)

{

Fly = random (2) + 1;

cout << City[Fly]<< ":" ;

}

getch();

}

1. DEL : CHN : KOL:
2. CHN: KOL : CHN:
3. KOL : BOM : BNG:
4. KOL : CHN : KOL:

**d.** Find the output of the following code: **1**

#include<iostream.h>

#include <conio.h>

#include <ctype.h>

void Encrypt (char T[])

{

for (int i=0;T[i]!='\0'; i += 2)

if (T[i] == 'A' || T[i] == 'E')

T[i] = '#';

else if (islower(T[i]))

T[i] = toupper (T[i]);

else

T[i] = '@';

}

void main()

{

char Text[]="SaVE EArTh 2018";

Encrypt (Text);

cout<<Text<<endl;

getch ();

}

**e.** Find the output of the following given structure: (assume all header files are included)

struct point **2**

{

 int X, Y;

};

 void Show(point P)

{

 cout << P. X << ': ' << P.Y<< endl;

}

void main ( )

{

 point U = {20, 10}, V, W;

 V= U;

 V. X+=20;

 W =V;

 U. Y+=10;

 U. X+=5;

 W. X −=5;

 Show (U);

 Show (V);

 Show (W);

 getch ( );

}

**f.** How can you give a single line and multiline comments in C++ explain with

suitable examples. **2**

**Q5**.

 **a**. Rewrite the following code after removing the syntax error if any. Underline the

 correction. (Assume all header files are included) **1**

jumpto (int; int )

void main()

{

first =10, second = 20;

jumpto (first; second);

jumpto (second);

}

void jumpto (int n1; int n2=20)

{ n1=n1+n2; }

**b**. What is the other name for the subscript in arrays? **1**

**c**. What will be the output of the following program segment? (Assume all header files are included) **1** void main ()

{

clrscr ();

int a[] ={ 5, 10, 15, 20, 25 ,11,34,45,44,89,10,16};

 int i, j, m;

 i = ++ a [1];

 j = a[2]++;

 m= a [i++];

 cout<< i<<"\t"<<j<<"\t"<<m;

getch();

 }

**d.** Write a function to print the value of each subscript and each corresponding element of the array ARR for those elements whose value does not exceed 15. **2**

 For example: if ARR = 1, 20, 33, 14, 5, 6, 17, 8, 9, 100

Output should be: Subscript Element

 ARR [0] 1

 ARR [3] 14

 ARR [4] 5 and so on..

**e**. Explain with the logic to display the following star pattern. **2**

 **1**

 **2 3**

 **4 5 6**

 **7 8 9 10**

**f.** Give output of the following: (assume all header files are included) **1**

void main( )

{

int arr [6] = {1, 4 , 5, 9, 13, 91}, flag;

for(int j=0; j<6; j++)

{

flag=1;

if ( arr[j] == 1 )

cout<<arr[j] <<"\t"<< "Navkis" <<endl;

else if (arr [j] > 1)

{

for ( int g = 2; g <= arr[j]/2; g++ )

{

if ( arr[j]%g==0)

{

flag = 0;

break;

}

}

if ( flag == 1)

cout << arr [j] << endl;

}

getch();

}

**g.** Give logic that doubles every element of a 1-D array and for searching an element

 in 1-D array using linear search technique. **2**

**Q6.**

**a**. Give the output of the following code segment (assume all header files are included):

struct Train **1**

{

 int tno, tripno;

 int personcount;

};

void Trip(Train &T, int tc=10)

{

 T.tripno++;

 T. personcount += tc;

}

void Show( Train T)

{

 cout << T. tno << ":" << T.tripno << ":" << T. personcount << endl;

}

void main( )

{

 Train T1={ 1,0,0};

 Train T2= {10, 101, 10};

Trip (T1);

Trip (T2, 20);

Show (T1);

Show (T2);

Trip (T1, 25);

Show (T1);

Show (T2);

getch ( );

}

**b.** Rewrite the following program after removing the syntactical error if any.

 Underline each correction. **2**

#include <iostream.h>

 void main( )

{

 Structure STUDENT

{

 Char stu\_name [25];

 Char stu\_sex;

 int stu\_age=17;

} student**;**

Gets (stu\_name);

Gets (stu\_sex);

}

**c**.What is the advantage of creating an array of structures instead of using individual variable names for each structure variable? **1**

**d.** Write a statement that defines a structure type consisting of two elements: a string of 12 characters and a float and also initialize the variable of the structure. **2**

**e.** Define two structures called Employee and Allowance: **3**

1. Employee: Code, Name, address, mobile number, salary.
2. Allowance: da = 65% of salary, hra = 15% of salary.

Net= salary + hra+ da.

Write a program to calculate the net salary of an employee.

**f.** Explain with a C++ program how to you pass structures to the functions. **3**

**Q7.**

**a.** Predict the output of the following statements: **2**

1. cout << strcat (“ABC”, “XYZ”);
2. int ch = toupper (‘b’); cout << ch;
3. int y = strlen ( “INDIA” ); cout << y;
4. int turn = random (4) + 5;

 What will be the max and min value assigned to the variable *turn*?

**b.** Explain static variable with a program. **2**

**c.** How does a function prototype differ from a function header in a function definition? What will be the output of the following code? (Assume all header files are included)

void Execute (int &X, int Y=200) **3**

{

 int Temp = X + Y;

 X += Temp;

 if (Y != 200)

 cout << Temp << " "<< X <<" "<< Y << endl;

}

void main( )

{ int A = 50, B = 20;

 Execute ( B );

 cout << A << " " << B << endl;

 Execute ( A, B );

 cout << A << " " << B << endl;

 getch( );

}

**d.** Convert the following code segment into switch case construct. **2**

int ch;

cout<<"enter your choice(1 to 3)";

cin >> ch;

if ( ch == 1 ) cout << " Laptop " ;

else if ( ch == 2 ) cout << " Desktop " ;

else if ( ch== 3 ) cout << " Notebook " ;

else cout << "Invalid Choice " ;

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