Model Question Paper
Class- XI
Computer Science

M.M. :70 **Time:3 hrs.**

Instructions:

{1}All Question are compulsory.
{2}Programming language :c++

Q.1 [A] Explain functional components of a Computer? **2**
[B] Write different between application software and system software. **2**
[C]Define Hybrid computer? **1**
[D]What function of operating system plays to manage memory. **1**

Q.2[A]Write differences between logical errors and syntax errors. **2**
[B]What do you mean by robustness of a program. **2**
[C]What is guard code. **1**
[D]What is the process of translation of the algorithm ,into a program,called? **1**
[E] What are the characteristics of a good program ? **2**
[F] Name two types of compilation errors ? **2**

Q.3[A]Name the header files to which the following belongs to :
(i) getch( ) (ii) isdigit( ) (iii) sqrt( ) (iv) atoi( ) **2**

[B]write output for following code:
```
int val,n=1000,;
cin>>val;
res=n+val>1500?100:200;
cout<<res;
```
i) If the input is 1000.
ii) If the input is 200. **2**

[C] Write the equivalent c++ expressions- **2**
(1) p=2(l+b)
(2) $z=2(p/q)^2$
(3) $s=1/2mv^2$
(4) $x=-b+\sqrt{(b^2-4ac)}/2a$

[D] Write difference between keyword and identifier. **2**

Q.4[A] Draw a flowchart that print the smallest of three given no. **2**
[B] Rewrite the following program after removing syntactical errors,underline each Correction. **2**

```
# include<iostream.h>
 Void main( )
 {
    const MAX  = 0 ;
     int a, b;
     cin<<a>>b;
     if(a > b )
     MAX = a;
     for(x=0;x<MAX; x++)
     cout<<x;
 }
```

[C] Write a program in c++ to print Fibonacci series:- **3**
0,1,1,2,3,5,8 …….

[D] Write a program in c++ to find out factorial of a given no. **3**

Q.5 [A] Write a program in c++ to replace every space in a string with hyphen. **2**

[B] Find the total no. of elements and total size of the following array: **2**
(i) int student[20] (ii) float A[4][5]

[C] Rewrite the following program after removing syntactical errors,underline each Correction. **2**

```
#include<iostream.h>
main()
{
   int  sum[2,4];
   for(i=0;i<2;i++)
     for(j=0;j<=3;i++)
   { cout<<sum;
   }
```

[D] Find out the output for the following program: **4**

```
#include<iostream.h>
main()
{
 int a[5]= {5,10,15,20,25};
 int i, j,k=1,m;
 i = ++a[1] ;
 j= a[2]++;
 m= a[i++};
 cout<<i<<j<<k<<m;
}
```

[E] Write a program in c++ to find row and column sum of a matrix . **3**

[F] Give the proper array declaration for the following :- **2**
(i) Declare an integer array A which can hold 30 values.
(ii) declare a two dimensional array called MIN ,4* 5 of integer.

Q.6[A] What are the 3 steps using a function . **3**

[B] Find the output of the following program: **2**

```
#include<iosteam.h>
void Execute (int& x,int y=200)
{
 int temp = x + y;
 x+ = temp;
if(y!=200)
cout<<temp<<x<<y;
}
 main( )
{
int a = 50,b=20;
Execute(a,b);
cout<<a<<b;
}
```

[C] Write a function in C ++ having 2 parameters x and n of integer type with result type float to find the sum of following series :-

$1 + x/2! + x^2/ 3! + \ldots\ldots\ldots\ldots\ldots\ldots + x^n/n+1!$ **3**

[D] Write a program to calculate the sum of n natural numbers by using function. **3**

Q. 7[A] Convert the following into its binary equivalent codes. **4**

(i) $(84)_{10} = (?)_2$

(ii) $(2C9)_{16} = (?)_{10}$

(iii) $(101010)_2 = (?)_{10}$

(iv) $(3674)_8 = (?)_2$

[B] Express -4 in 1's complement form. **1**

[C] What is the function of a bus **.** **1**

[D] Write two types of cache memory**.** **2**

[D] write difference between SRAM and DRAM. **2**

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MARKING SCHEME

Class- XI **Marks-70**
Sub: Computer Science **Time-3hrs.**

Q.1[A] 1 mark for giving names of functional units(input/output/memory)
1 mark for explanation of the working of functional units.
[B].2 marks for any 2 correct differences.
[C].1 mark for correct definition of hybrid computer.
[D]. 1 mark for correct answer (memory management system)

Q.2[A]. 2 mark for any 2correct differences
[B]. 2 mark for correct definition.
[C]. 1 mark for correct definition.
[D]. 1 mark for correct answer (coding).
[E]. 2 marks for any 2 characteristics of good program with explanation.
[F]. 2 marks for correct answer that are
1. Syntax error
2. Semantic error

Q.3[A]. Name the header file for which the following belongs to :-
1. getch() – conio.h
2. isdigit() – ctype.h
3. sqrt() – math.h
4. atoi() – stdlib.h

1/2 Mark for each correct answer

[B]. Output will be
1. 100
2. 200

1 mark for each correct answer

[C] Equivalent expressions are :-
a) p=2*(l+b);
b) z=2*pow((p/q),2)) or 2*p/q*p/q;
c) s=1/2*m*v*v; or s=1/2*m*pow(v,2);
d) x=-b+sqrt(b*b-4*a*c)/2*a; or x=-b+sqrt(pow(b,2)-4*a*c)/2*a;

1/2 Mark for each correct answer

[D] 2 marks for any 2 correct differences

Q.4 [A]. 2 Marks for correct flowchart.

[B] void main()
{
const int MAX=0;
int a,b;
cin>>a>>b;
if (a>b)
MAX= a;
for(x=0;x<MAX; x++) // x is an undefined symbol
cout<<x;

½ mark for each correction

[C]. 3 marks for writing correct program
(
½ mark for including correct header file
½ mark for declaring variables
½ mark for assigning values
1 mark for correct logic
½ mark for print series
)

[D]. 3 marks for writing correct program
(
½ mark for including correct header file
½ mark for declaring variables
½ mark for enter variable/number
½ mark for correct loop
½ mark for correct logic
½ mark to print factorial of given no.

)

Q.5[A] 2 mark for writing correct program :-
(
½ mark for including correct header file
½ mark for entering string
1 mark for correct logic & correct result
)

[B] ½ mark for each correct answer
a) total no. of elements = 20
total size = 20*2 = 40 bytes
b) total no. of elements =4*5=20
total size =4*4*5= 80 bytes

[C]
```
main()
 {
 int sum[2][4];
 for (int i=0; i<2; i++)
 {
 for  (int j=0; j<=3 ; j++)
 }
 cout<<sum[i][j];
 }
```
½ mark for each correction

[D] 1 mark for each correct answer
12,15,1,0

[E] 3 marks for writing correct program :-
(
½ mark for including correct header files.
½ mark for declaring variables
½ mark for reading an array
½ mark for calculating column sum
½ mark for calculating row sum
½ mark to print row sum & column sum
)

[F] 1 marks for each correct declaration :-
(i) int A[30];
(ii)int MIN[4][5];

Q.6[A] 1 mark for each correct step:
i)function declaration.
ii)function definition.
iii)function calling.

[B] 1 mark for each correct answer
(i) a= 120
(ii)b=20

[C]

3 marks should be given for correct definition of function

- ½ mark for correct function header file
- ½ mark for declaring variables.
- ½ mark for correct logic for calculating factorial
- 1 mark for correct logic for calculating sum of terms
- ½ mark for return sum.

[D] void total (int n)

```
{
   int i,sum ;
   sum =0;
   for(i =1;i<=n;i++ )
  {
     sum =sum + i;
  }
 cout<<"sum of natural numbers is"<<sum;
}
```

3 marks should be given for correct definition of function

- ½ mark for correct function header file
- ½ mark for declaring variables.
- ½ mark for assign 0 to sum;
- 1 mark for correct logic for calculating sum
- ½ mark for print sum

Q.7[A] 1 Mark for each correct answer :

(i) $(84)_{10} = (1010100)_2$

(ii) $(2C9)_{16} = (713)_{10}$

(iii) $(101010)_2 = (42)_{10}$

(iv) $(3674)_8 = (11110111100)_2$

[B] 1 Mark for finding correct complement of number

[C] 1 Mark for correct function of bus

[D] 1 Mark for each correct type

[E] 2 Mark for any 2 correct differences between SRAM and DRAM

Model Question Paper
Class- XI
Computer Science

M.M. :70 **Time:3 hrs.**

Instructions:

{1}All Question are compulsory.
{2}Programming language :c++

Q.1[A] How is a compiler different from interpreter ? **2**
[B] What do you understand by application software ? **2**
[C] Who invented the punched card ? **1**
[D] Name the super computers developed in India ? **1**

Q.2[A] What is meant by Graceful Degradation ? **2**
[B] Why are logical Errors harder to locate ? **2**
[C] Write steps required to develop a program and explain the steps briefly**.** **3**
[D]Write an algorithm to compute factorial of a given number**.** **3**

Q3[A] Name the header files to which the following belongs to:- **2**
(i)exit( ) (ii) gets() (iii) tolower( ) (iv) malloc( )

[B] What will be the output of the following statements**:** **2**
(i) a = sqrt(16**)**
(ii) b= strlen("COMPUTER")
(iii)c = ceil(13.45)
(iv) d =abs(-6)

[C] What is the purpose of sizeof operator ? **2**
[D] Write differences between Unary Operator and Binary Operator **2**

Q.4[A] Write differences between entry controlled loop and exit controlled loop **2**
[B] Write a program to input a character and to print whether a given character is an alphabet ,digit or any other character. **2**
[C] Give the output for the following program segment: **2**

```
(i) for(int i=10;i>6;i=i-2)
      cout<<i<<endl;
(ii) for(int i=-5;i>-7;i--)
      cout<<i+1<<endl;
```

[D] Write a menu driven program to calculate area of a circle,a rectangle depending upon user's choice. **3**

Q.5[A] what is the difference between following two statements :- **1**

(i) int sum[10];
(ii) int sum[10]= 20;

[B] Rewrite the following program after removing the syntactical errors.underline each correction. **3**

```
#include<iostream.h>
main( )
{
 int x[5],y,z[5]
 for( i=0;i<5;i++
 {
 x[i] = i;
 z = i+3;
 y=z;
 x=y;
}}
```

[C] Find the output of the following program: **2**

```
#include<iostream.h>
 main( )
 {
 int a[4],i;
 for( i=0;i<4;i++)
 a[i] = 5*i;
 for(i=0;i<4;i++)
 cout<<a[i];
 }
```

[D] Write a program to read a string and print how many words are stored in the string. **3**

[E] Write a program to find the sum of array elements. **3**

Q.6[A] What do you mean by function prototype ? **1**

[B] What is meant by scope ? Name all kinds of scope is supported by C++. **3**

[C] Find the output of the following: **3**

```
#include<iostream.h>
int max(int & x,int &y,int &z)
{
  if(x>y && y>z)
 {  y++;
    z++;
     return x;
 }
 else
 {
```

```
        if(y>x)
        return y;
        else
    return z;
 }
 void main( )
{
  int a=10,b=13,c=8;
  A= max(a,b,c);
  cout<<a<<b<<c;
  B= max(a,b,c);
  cout<<++a<<++b<<++c<<endl;
}
```

[D] Write a complete C++ Program that reads a float array having 15 elements. The program uses a function reverse( ) to reverse this array. **4**

[E] Write a C++ function having two parameters x of type float and n of type integer **4**
With result type float to find the sum of following series :-
$1 + x/2! + x^2/4! + x^3/6! + \ldots\ldots\ldots\ldots\ldots\ldots + x^n/2n!$

Q.7[A] Difference between online UPS and offline UPS. **2**
[B] Explain what are the two categories of printers ? **2**
[C] What is access time. **1**
[E] Convert the following into its binary equivalent number system :- **3**
(i) $(EB4A)_{16} = (?)_{10}$
(ii) $(84)_{10} = (?)_2$
(iii) $(B2F)_{16} = (?)_8$
[F] Find the eight bit one's complement form of the following: **2**
(i) -14 (ii) -49

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MARKING SCHEME

Class- XI **Marks-70**
Sub: Computer Science **Time-3hrs**.

Q.1[A] 2 marks for any 2 correct differences. .
[B].2 marks for correct definition.
[C].1 mark for correct answer.
[D]. 1/2 mark for each correct answer (PARAM,ANURAG)

Q.2[A]. 2 mark for correct definition
[B]. 2 mark for correct reason.
[C]. 1 mark for each correct steps.
[D]. 3 mark for correct algorithm.

Q.3[A] Name the header file for which the following belongs to :-

1. exit( ) – process.h
2. gets() – stdio.h
3. tolower() – ctype.h
4. malloc() – stdlib.h

[B] 1 mark for each correct answer .

(i) 16
(ii) 8
(iii)14
(iv) 6

[C] 2 mark for correct definition
[D] 2 marks for any 2 correct difference .

Q.4[A] 2 Mark for any 2 correct difference
[B] 2 Marks for writing correct program
(1/2 mark for including correct header file
1/2 mark declaring variable
1/2 mark for check for alphabets
1/2 mark for check for digits and other characters
)
[C] (i) 1 Mark for correct output
10,8
(ii) 1 Mark for correct output
-4,-5
[D] 3 Marks for writing correct program

(1/2 mark for including correct header file
1/2 mark declaring variable
1/2 mark for coding of designing menu
1/2 mark for use switch or if…..else statement
1/2 mark for check for calculate area of circle
1/2 mark for check for calculate area of rectangle.)

Q.5[A] 1 mark for writing correct differences.

[B]

```
void main()
{
  int x[5],y, z[5] ;
  for(int i =0;i<5;i++ )
  { x[i] = i;
    z= i+3;
    y = z;
    x[i] = y;
}}
```

½ mark for each correct answer

[C] ½ Mark for each correct answer :- 0,5,10,15

[D] 3 Marks for writing correct program

(1/2 mark for including correct header file
1/2 mark declaring variable
1/2 mark for enter a string
1 mark for correct logic
½ mark for print total no. of words
)

[E] 3 Marks for writing correct program

(1/2 mark for including correct header file
1/2 mark declaring variable
1/2 mark for enter array elements
1 mark for correct logic to calculate sum.
1/2mark for print sum.
)

Q.6[A] 1Mark for defining function prototype

[B] 1 Mark for correct definition and 2 Mark for correct scope names.

[C] ½ mark for each correct answer.
13,13,8
14,9,9

[D] 4 Marks for writing correct program
(
1/2 mark for including correct header file

1/2 mark declaring variables
1/2 mark for declaration of function
1/2 mark for enter an array elements
1/2 mark for calling function
1 mark for correct definition of function
1/2 for print reverse array)

[E]
4 marks should be given for correct definition of function

- 1 mark for correct function header file
- ½ mark for declaring variables.
- 1 mark for correct logic for calculating factorial
- 1 mark for correct logic for calculating sum of terms
- ½ mark for return sum.

Q.7[A] 2 Marks for correct difference.
[B] 2 Marks for correct answer{ 1. Impact 2. Non – Impact}
[C] 1 Mark for correct definition
[D] 1 Mark for each correct answer
(i) $(EB4A)_{16} = (60234)_{10}$
(ii) $(84)_{10} = (1010100)_2$
(iii) $(B2F)_{16} = (5457)_8$

[E] 1 Mark for each correct answer

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KENDRIYA VIDYALAYA SANGATHAN
Class- XI [Computer Science]

Time Duration: 3 Hrs M. M. 70

General instruction:

(i) All questions are compulsory

(ii) Programming language : C++

SECTION A

1. Explain any 2 important features of an Operating System.
   2
2. What is the difference between GUI and CUI?
   2
3. Write down the steps or DOS command to move a file from one location to another
   1
4. What is the difference between copying and moving a file.
   1

SECTION B

1. Explain the following terms with an example of each. (2 marks each)
   a. Comments
   b. Identifiers
2. Write down the stages of program development process
   2
3. What do you mean by Programming Errors? Explain all types of errors.
   3
4. Explain the term LIVEWARE.
   1

SECTION C

1. Write a program read a number from user and check whether the given no. is prime.
   5
2. Write a function to calculate the following series
   5

$$1 + X / X^2 + 2X / X^3 + 3X /X^4 + \ldots\ldots\ldots\ldots + NX/X^N$$

3. Evaluate the following C++ expressions where a, b, c are integers and d, f are floating point numbers. The Value of a=6, b=2, d=1.5 (2 marks each)

   a) f= a+ b/a

b) c= (a++) * d + b

c) c= a – (b++) * (--a)

4. Find out the errors, underline them and correct them

4

```
Void MAIN()
        {
        int  a,b =2;
        cout>> “Enter a Value
        cin<< “a”;
        floating f = a/ b;
        if ( a= < b)
                cout<<a <<” Greatest “;
        else
                cout<<b << “ Greatest”;
        cout<<”Values of f is : “<< f;
        f + = 13;
        cout << Now Value of f is << f;
        }
```

5. Write a program to find factorial of a given number.

4

6. Write a function to accept a String Str , a character Ch and an integer pos. Now in String ‘Str’ character at position ‘pos’ should be replaced with character ‘Ch’

4

7. Write a program to read a Matrix ant print the Transpose of that Matrix .

4

8.

a. What are the types of selection statements available in C++?Give example of each type. 2

b Differentiate between system software and application software.

2 c. Differentiate between compiler and interpreter.

2

d. Explain unary, binary and ternary operators? Give example of each type.

3

e. What is the difference between break and continue? Give example.

3

SECTION D

1. What are memory devices? Discuss RAM and ROM in detail

4

2. Explain the following terms (1 mark each)

a. PORT

b. REGISTER

c. ALU

d. NON-IMPACT PRINTER

3. What is the difference between online and offline UPS?

2

KENDRIYA VIDYALAYA SANGATHAN
Class- XI [Computer Science]
MARKING SCHEME

SECTION A

1. 1 mark each for any 2 features of an Operating System
2. 1 mark each for any 2 differences between GUI and CUI
3. 1 mark for writing DOS command
   Move <file> <target path>

OR

1 mark for writing correct steps to move a file in Windows environment

4. 1 mark for correct definition

SECTION B

1. One mark each for correct definition and 1 mark each for correct example
2. ½ mark each for mentioning correct Phases i.e.
   Analyze, Code, Debug, Test
3. 1 mark for correct definition. 2 marks (1/2 mark each) for mentioning correct types of errors i.e.
   Syntax, Run Time, Logical, Semantic
4. 1 mark for correct definition of LIVEWARE.
   Def: It is the term generally used for the people associated with and benefited from the computer System

SECTION C

1. One mark for including correct header files
   2 marks for correct logic
   2 marks for no syntax errors
2. One mark for writing correct prototype of function
   2 marks for correct logic
   2 marks for no syntax errors
3. 2 marks for finding each correct output

Output :

a) 6
b) 8.5
c) -5

}

4. 1/2 mark for each identification and correction of error

```
# include <iostream.h>
  void main()
        {
        int  a,b =2;
        cout<< "Enter a Value";
        cin>>a;
```

```
float f = a/ b;
if ( a <= b)
        cout<<a <<" Greatest ";
else
        cout<<b << " Greatest";
cout<<"Values of f is : "<< f;
f + = 13;
cout << "Now Value of f is" << f;
}
```

5. One mark for including correct header files and writing comment
   2 marks for correct logic
   2 marks for no syntax errors
6. One mark for writing correct prototype of function and writing comment
   2 marks for correct logic
   2 marks for no syntax errors
7. One mark for including correct header files and writing comment
   2 marks for correct logic
   2 marks for no syntax errors

8. a. Correct definition 1 mark
      Any 2 name 1 mark
   b. Any 2 difference 1 mark each
   c. Any 2 difference 1 mark each
   d. 1 mark for each operator with example
   e. 2 marks for difference and 1 mark for example

SECTION D

1. Correct definition - 1 mark
2. 1 mark for each correct definition of
   a. PORT
   b. REGISTER
   c. ALU
   d. NON-IMPACT PRINTER
3. Correct difference b/w online and offline UPS - 2 mark