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,;   **2**
    cin>>val;
    res=n+val>1500?100:200;
    cout<<res;
    i)   If the input is 1000.
    ii)   If the input is 200.

   [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+√(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 **2**
      Correction.

```
# 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 **2**
    Correction.

```
#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 :-

$$1 + x/2! + x^2/3! + \ldots\ldots\ldots\ldots\ldots+x^n/n+1!$$ **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   **2**
alphabet ,digit or any other character.
[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

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

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

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