Please check that this question paper contains 7 questions and 7 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) | How is data different from information ? | (1) | | |
| | (b) | What do you understand by GUI ? | (1) | | |
| | (c) | Differentiate between the following : | | | |
| | | (i) Virus and Worm | | | |
| | | (ii) Utility software and Application software | | | |
| | (d) | Convert the following : | | | |
| | | (i) $(27.625)_{10} = (?)_2$ | | | |
| | | (ii) $(A42)_{16} = (?)_8$ | | | |
| | | (iii) $(23.25)_8 = (?)_{10}$ | | | |
| | | (iv) $(11100.1010)_2 = (?)_{16}$ | | | |
| 2. | (a) | Identify the type of errors (Syntax, Logical, Run-time) : | | | |
| | | (i) int $a=10;$ | (1) | | |
| | | int b=20; | | | |
| | | c=b-a; | | | |
| | | cout<<"sum of"< <a<<"and"<<b<<"="<<c;< td=""><td></td></a<<"and"<<b<<"="<<c;<> | | | |
| | | (ii) a=7/0; | (1) | | |
| | | (iii) ra+one=mov; | (1) | | |
| | (b) | Give an example of single line comment and multiline comment each. | (2) | | |

| (c | How many times the following loops will be executed : | (1+1+1) |
|----|--|---------|
| | (i) for(int i=1;i<=10;i++) | |
| | {cout< <i++;}< td=""><td></td></i++;}<> | |
| | (ii) int i=11; | |
| | while(i<11) | |
| | (cout< <i;}< td=""><td></td></i;}<> | |
| | (iii) int i=5; | |
| | do { | |
| | cout< <i;< td=""><td></td></i;<> | |
| | } while(i<1); | |
| (d | A storekeeper wants to keep track of his inventory. He wants to give each item a code no; and a name, He also wants to store the price of each item alongwith quantity in stock. Suggest suitable variable names and their data types. | (2) |
| (e | | |
| (f | What is a program ? | |
| (a | Find out the errors in the following C++ statements : | (2) |
| | (i) cout<<"a="a; | |
| | (ii) for $(x=\pm 1; x < 10; x++)$ | |
| | (iii) $x = +2;$ | |
| | (iv) break=x*y | |
| (b | Observe the following C++ code carefully and rewrite the same after removing all the syntax error(s) present in the code. Ensure that you underline each correction in the code. Important Note: All the desired header files are already included, which are required | (2) |
| | to run the code. Correction should not change the logic of the program. #define Change(A B) 2*A + B: | |
| | <pre>#define Change(A,B) 2*A+B; void main()</pre> | |
| | { | |
| | Float X, Y,F; | |
| | cin>>X>>Y; F=Change[X, Y]; | |
| | cout<<"Result:"< <f<endline;< td=""><td></td></f<endline;<> | |
| | | |

| | (c) | Observe the following C++ code and write the name(s) of the header file(s), which will be essentially required to run it in a C++ compiler : void main() | | | |
|----|-----|--|-----|--|--|
| | | { | | | |
| | | float Area, Side; | | | |
| | | cin>>Area; | | | |
| | | Side=sqrt(Area); | | | |
| | | cout<<"One Side of the Square:"< <side<<endl;< td=""><td></td></side<<endl;<> | | | |
| | | } | | | |
| | (d) | Determine the number of bytes required to store | (2) | | |
| | | BOOK_NOinteger typeBOOK TITLE20 Characters | | | |
| | | _ | | | |
| | | | | | |
| | | Type char | | | |
| | (e) | Construct logical expressions to represent the following conditions : (i) salary is in the range 8000 to 10000 | (2) | | |
| | | (ii) ch is an uppercase letter | | | |
| | | (iii) value is not in the range 10 and 20 | | | |
| | | (iv) a is an odd number | | | |
| | (f) | Write a c++ program to input a number and print its factorial. | (2) | | |
| | (g) | What is difference between '/' and '%' operators in c++ ? Explain with | | | |
| | | example. | (2) | | |
| 4. | (a) | Find the output of the following program : | (3) | | |
| | | <pre>#include <iostream></iostream></pre> | | | |
| | | void display(charc= '*', intn= 1); | | | |
| | | int main() { | | | |
| | | display(); | | | |
| | | display('#'); | | | |
| | | display('\$', 5); | | | |
| | | return 0; | | | |
| | | } | | | |
| | | void display(char c, int n) { | | | |
| | | for(int $i = 1$; $i \le n$; $++i$) { | | | |
| | | cout< <c;< td=""><td></td></c;<> | | | |
| | | } | | | |
| | | cout< <endl;< td=""><td></td></endl;<> | | | |
| | 1 | | | | |

```
What will be the output ? All header files are present.
    (b)
                                                                                       (3)
         void main ()
          {
              char title [] = "Academic"
              int h=strlen (title):
              for (int j = 0; j < h; j++)
                  if (j \% 3 = = 0)
              {
                       title [j] = title[j+1];
                   else
                        title [j] = '*';
              }
              cout << "title is: "<c title;
5.
         The following program is used to find the reverse of a number. Some
    (a)
         statements are missing in it. Fill in the missing statements.
                                                                                       (3)
         void main()
              {
                  int n, rem, rev =___;
                   cin>>n;
                   while()
                         rem =____;
                         rev =____;
                             =_
                         n
                   cout<< ;
    (b)
         Kavya is playing a game that generates a set of 4 random numbers. Help
         her to identify the correct option(s) from the options given below so that
         she wins the game. Justify your answer.
                                                                                       (2)
          #include<iostream.h>
         #include<stdlib.h>
         const int INIT=15;
         void main()
          ł
              randomize();
              int p=5,n;
              for(int i=1;i<=4;i++)
                 n=INIT+random(p);
                 cout<<n<<':';
               }
               19:16:15:18: (ii) 14:18:15:26:
          (i)
         (iii) 19:16:14:18:
                                (iv) 19:16:15:16:
```

| | | - | |
|----|-----|--|---------|
| | (c) | Rewrite the following code using "switch-case" selection control | (3) |
| | | char ch; | |
| | | cout<<"\n Enter the grade from A- E"; | |
| | | cin>>ch; | |
| | | $if(ch == 'A' \parallel ch == 'B')$ | |
| | | cout<<"Excellent"; | |
| | | else if(ch == 'C') | |
| | | cout<<"Good"; | |
| | | else if(ch == 'D') | |
| | | cout<<" Average"; | |
| | | else if (ch=='E') | |
| | | cout<<"Work Hard"; | |
| | | else | |
| | | cout<<"Wrong Choice";char ch; | |
| 6. | (a) | Write a program in C++ to shift all positive elements of an array to the | |
| | | left and all negative elements to the right. | (3) |
| | | E.g. | |
| | | If the array is | |
| | | A: 2, 4, -1 , 6, -7 , -3 , 8, 10 | |
| | | Then the resultant array should be | |
| | | B: 2, 4, 6, 8, 10, -1 , -7 , -3 | |
| | (b) | Write a program in C++ which accepts a string, counts number of digits | |
| | | and display it. For example : | (4) |
| | | Example | |
| | | Input String : I earned 34 points and Arnav scored 8. | |
| | | Output : 3 | |
| | | The code should be "indented" properly. | |
| | (c) | Read the following program and answer question (i) and (ii) : #include <iostream.h></iostream.h> | (2+2=4) |
| | | void swap1 (int a,int b) | |
| | | { | |

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int temp;
     temp=a;
     a=b;
     b=temp;
     void swap2(int &a,int &b)
     {
          int temp;
     temp=a;
     a=b;
     b=temp;
     void main()
          int x=2;
         int y=3;
         swap1 (x,y);
         cout << x << "," << y << endl; //statement 1
         swap2(x,y);
         cout<<x<<","<<y<endl; //statement 2
     }
     (i)
          What will be the output of statement 1 and statement 2? Justify
          your answer.
     (ii) Identify the type of parameter (actual and formal) from the
          following parameters. Give reason to justify your answer.
(d)
     Write a function in c++ to print the product of each column of a two
     dimensional integer array passed as the argument of the function :
     Explain : If the 2-D array contains :
                2
                       3
                              1
                6
                       1
                              6
                1
                       5
                              2
                6
                              7
                       4
     Then the output should appear as :
     Product of column 1 = 72
     Product of column 2 = 60
     Product of column 3 = 84
```

(3)

| 7. | (a) | Give the output of the following program (Assuming that all required header files are included in the program) #include <iostream.h></iostream.h> | | | | | | (2) |
|----|--|---|----|--------|-----|------|--|--------|
| | | struct TD | | | | | | |
| | | { int x,y,z; }; | | | | | | |
| | | void MvIn(TD &P, int step) | | | | | | |
| | | | | | | | | |
| | | P.x ⁺ =step; | | | | | | |
| | | P.y ⁻ =step; | | | | | | |
| | | P.z ⁺ =step; | | | | | | |
| | | } | | | | | | |
| | | void main() | | | | | | |
| | | { | | | | | | |
| | | TD $ob=\{15,25,5\};$ | | | | | | |
| | | MvIn(ob,3); | | | | | | |
| | cout< <ob.x<<','<<ob.y<<','<<ob.z<<endl;< td=""><td></td></ob.x<<','<<ob.y<<','<<ob.z<<endl;<> | | | | | | | |
| | | } | | | | | | |
| | (b) | b) Consider the following structure of date struct Date | | | | | | (2+2=4 |
| | | { | | | | | | |
| | | int dd,mm,yy; | | | | | | |
| | | <pre>}; Write a function int Compare_date(date d1,date d2) which takes 2 dates variables as parameter and returns 1 if the dates are same and 0 if the dates are different or (Assuming both the dates are valid)</pre> | | | | | | |
| | | E.g. | | dd | mm | уу | | |
| | | If value of 1 st date variable is | | 2 | 10 | 2014 | | |
| | | And value of 2 nd date variable is | | 4 | 12 | 2014 | | |
| | | The function should return | :0 | | | | | |
| | | If value of 1 st date variable is | | 4 | 12 | 2014 | | |
| | | And value of 2 nd date variable is | _ | 4 | 12 | 2014 | | |
| | | The function should return | :1 | | | 1 | | |
| | | Write a program to declare 2 date variables. Accept values in 2 date variables and invoke the function Compare_date(). | | | | | | |
| | | | | Joinpa | uat | | | |