Time :- 3 Hrs.   **Computer Science(083)**   **M.Marks : 70**

Note:- Question solved using pencil will not be considered .Do all the parts Of a question together .Write the correct question no & tie your sheets in correct order .

Q.1 a) What are utility softwares ? Explain any one of them in detail with example . **[2]**

b) Give difference between CUI and GUI giving example. **[2]**

c) Give difference between interpreter and compiler in brief . **[1]**

Q.2 a) Find out the values of X , Y and Z in the following :-

$(123.875)_{10} = (X)_8 = (Y)_{16} = (Z)_2$ **[3]**

b) Write the ASCII-8 coding for the word "Work Hard" in binary notation. How many bytes are required to store this word using this coding. **[2]**

Q.3 a) Compare CISC and RISC processors by giving atleast 4 differences . **[2]**

b) Give two examples each of 64 bit and 128 bit microprocessors. **[2]**

c) Write short note on Blue Ray disc & PS-2 Port . **[2]**

d) What are RPROM , EPROM and EEPROM ? **[3]**

e) Just Name different types of computer monitors . **[1]**

Q.4 a) Give difference between 'itoa( )' and 'atoi( )' functions with example. **[2]**

b) When can a function be on left hand side of assignment operator? Explain by giving example. **[2]**

c) There are two ways to change a variable (its contents) in a statement that calls a function. What are they ? Explain giving example . **[2]**

d) What do you mean by preprocessor directive? Explain and give an example. **[2]**

e) Give header file of 'ceil( )' and 'floor( )' . **[1]**

f) Give difference between 'gets( )' and 'getline( )' function. **[1]**

Q.5 Find out errors in the following code snippets :-

a)
```
#include<iostream.h>
   structure Gymkhana
   { int  mem  number =0 ;
     char memname ;
     char memtype[ ] = "QLY" ;
   } var1 ;
   STRUCT  Swimclub
   { int  mem  number ;
     char  memname ;
     char memtype[ ] = "HLY" ;
   } var2 ,var3;
   void main( )
   {  clrscr();
     cout>>"Enter Member no of Gymkhana =" ;
     cin>>memnumber.var1 ;
     cout<<"Enter Member Name of Gymkhana =" ;
     gets(memname);
     var2=var1;
     var3=var2 ;
     var3.memtype="ALY";
     cin<<"Member number :" << var3.memnumber ;
         <<"Member Name :" <<var3.memname ;
         <<"Member Type :" <<var3.memtype ;
      getch();        }
```
[2]

b)
```
# include<iostream.h>
   void main( )
   {  struct movie
     { char movie_name[20]  ;
        char movie_type ;
```

```
                        int ticket_cost = 100 ;
                  }MOVIE;
                  gets(movie_name) ;
                  gets(movie_type) ;            }                                          [1]
```

c) What is the error in the following structure definition ?
```
     struct {
               int hrs , mins ;
          } ;                                                                              [1]
```

Q.6 Give the output of the following program segments with working and overlook errors   (if any) :-

a)
```
# include<iostream.h>
# include<string.h>
#include<ctype.h>
void convert(char str[ ] , int len)
{     for (int count=0 ; count<len ; count++)
      { if (isupper(str[count]))
           str[count] = tolower(str[count]) ;
             else if (islower(str[count]))
               str[count] = toupper(str[count]);
            else if (isdigit(str[count]))
              str[count] = str[count] + 1 ;
       else str[count] = '*';
       }  }
void main( )
      {          char text[ ] = "CBSE Exam 2014" ;
                 int size=strlen(text);
                 char temp ;
                 convert(text,size);
                 cout<<text<<endl ;
                   for(int c=0 , r=size-1 ; c<=size/2 ;  c+ +  , r- -)
                   {
                         temp = text[c] ;
                         text[c] = text[r] ;
                         text[r] = temp ;          }
                 cout<<text<<endl ;       }                                                 [2]
```
b)
```
  #include<iostream.h>
  int x=10;
  void pass ( int & a, int b, int & c)
  {
     int x = 4 ;
     c + = x;
     a*= :: x ;
     b + = c;                         }
  void main ( )
{    int y =1 , x = 2;
     pass ( y , :: x , x);
     cout << x << ":" << y << ":"  << :: x  << endl;
     pass ( :: x , x , y);
     cout << x << ":" << y << ":"  << :: x  << endl;     }                                  [2]
```
c)
```
      #include<iostream.h>
      void main ( )
      {         int v1= 5, v2 = 10;
                for ( int x = 1 ; x<=2 ;  x++ )
                {        cout<< ++ v1 << v2- - << endl ;
                         cout<< - - v2 << v1 ++ << endl ;          }
      }                                                                                     [2]
```
d) #include<iostream

2

```
  int Execute ( int M)
{ if( M%3= = 0)
     return M* 3;
  else  return M+ 10 ;
}
  void output ( int  b = 2)
  {       for( int T = 0;T < b;T++ )
          cout<< Execute ( T )<< " * ";
          cout<< endl ;
   }
  void main( )
  {     int x=4 ;
        output(x);
        output( );
  }                                                                                              [2]
  e) #include<iostream.h>
    int sum(int arr[ ], int size) ;
    void main( )
   { int val[ ]={ 1,3,5,7,9,11,13,15,17,19};
     int s1=0,s2=0;
     s1=sum(val,8);
     s2=sum(val,6);
     cout<<s1<<" "<<s2;          }
   int  sum(int arr[ ], int size)
   {  static int s=0;
      for(int I=0 ; I<size ; ++I)
       s += arr[I];
      return s;          }                                                                       [2]
  f) What is typedef ? Explain with example.                                                     [1]
```

Q.7 a) Study the following program and select the possible output from it and justify your answer : -

```
#include<stdlib.h>
#include<iostream.h>
#include<string.h>
void main()
{  randomize();
   char A[ ]="WELCOME";
   int ToGo;
  for(int I=0;I<strlen(A);I++)
  {
    ToGo=random (sizeof (ToGo)*2) +1;
    cout<<A[ToGo]<<":";
  }    }
i)  W: E: L: C: O: M: E:
ii)  E: C: E: E: C: C: E:
iii) E: C: E: E: C: C: O:
iv) C: C: C: E: E: C: C:                                                                          [2]
```

b) Based on the following C++ code, find out the expected correct output(s) from the options (i) to (iv). Also, find out the minimum and the maximum value that can be assigned to the variable Trick used in the code at the time when value of **Count** is 3:

```
void main( )
{       char Status[  ][10]={"EXCEL","GOOD","OK"};
        int Turn=10,Trick;
        for(int Count=1 ; Count<4 ; Count++)
        {
           Trick=random(Count) ;
           cout<<Turn-Trick<<Status[Trick]<<"#";
        }
}
```

3

```
(i)  10EXCEL#10EXCEL#80K#
(i)  10EXCEL#80K#9GOOD#
(ii) 10EXCEL#9GOOD#10EXCEL#
(iii)     10EXCEL#10GOOD#80K#
```
                                                                        [2]

Q.8 Write a C++ program to enter a number of 'int' type having 5/4/3/2 digits and then arranging all its digits in ascending
Or descending order as per user's choice . For eg…….if you entered 87163 then output should be 13678 if user
Selected ascending order .   **[3]**

Q.9 Write a UDF 'major( )' in which two date type structures will be passed . One is Current date and other is Date of Birth
of user. The UDF will be designed to check & display the age of the user and to find whether user is major or not at
that day . To return anything from the function is not compulsory.   **[3]**

Q.10 Write an interactive C++ program to accept an integer passed into the function 'tobinary( )' to get it converted
into an equivalent binary no & get it displayed in the function itself . Nothing will be returned back to the calling
function .   **[3]**

Q.11 Write a program to read a string and convert each vowel of the string to its previous alphabet that also in opposite case
But if that alphabet is non-vowel then its next alphabet in the same case and if the alphabet is 'z' or 'Z' then the next
consecutive alphabet will be 'a' or 'A' respectively .
For eg. if Input is – The Quick   Brown Fox Jumps Over   The Lazy   Dog .
                     UiF RVJdl CsPxo GPy KVnqt pwFs UiF MBaz EPh .   **[4]**

Q.12 Write a UDF 'which( )' with an integer array of 10 elements as argument .This function should check whether array
passed is arranged in ascending order / descending order / Not arranged .   **[3]**

Q.13 Write a program to print the following pattern in the centre of screen:-
```
        A
       ABA
      ABCBA
     ABCDCBA
    ABCDEDCBA
```
                                                                        [3]

Q.14 Write a UDF to find the second maximum element of a matrix. Pass the loaded matrix in the function as argument and
return second maximum element from the function to the calling function (i.e. main)   **[2]**