TIME ALLOWED :3 HRS.   **MAX.MARKS:70**

Q.1 a) Convert $(11111011110101)_2$ to octal .   (1)

b) Convert $(3674)_8$ to binary .   (1)

c) Convert $(72905)_{10}$ to hexadecimal .   (1)

Q2. Define the following (give an example of each) :   (3)

a) Function Definition

b) Global Variables

Q3. Explain the usage of following pre-defined functions, by giving an example. Also mention

their header file: (3)   a)

strcmpi()   b) pow()

Q4. Differentiate the following : (give an example of each)   (6)

a) Compile Time errors and RunTime errors

b) Switch and If statement

c) Call by Value and Call by Reference

Q5. What do you understand by preprocessor statements? Explain any one with suitable

example.   (2)

Q6. What do you understand by identifiers? How are meaningful identifiers useful?(2)

Q7. a. Write the names of header files, which are necessary to run the following program:

(1)

```
#include<iostream.h>
void main()
{ float x[]={237.567,35.654,37.74}; int i , j;
  for (int i = 0; i<3; i++)
        { j=fmod(x[i],2.5); cout<<setw(6)<<j; }    }
```

b) Rewrite the following C++ program after removing all the syntactical errors (if

any), underline each correction. :   (2)

```
include<iostream.h>
typedef char[40] string;
void main( )
{  string S="Australia";
L=strlen(S);
cout<<"String "<<S<<' has '<<L<<"Characters"<<endl; }
```

d) Find output of the following program segment : (3)

```
int a = 5;
void demo(int x, int y, int &z)
{           a += x+y;
z = a+y;
y += x;
cout<<x<<'*'<<y<<'*'<<z<<endl;  }
void main()
{           int a = 3, b = 4;
demo(::a,a,b);
demo(::a,a,b);   }
```

e) Find the output of the following program. (**2**)

```
#include<iostream.h>
#include<string.h>
#include<ctype.h>
void main ( )
{
char str[]="Good@luck10!";
for( int c=0; c<strlen(str); c++)
{
 if(islower(str[c]))
           str[c]=toupper(str[c]);
 else if(isupper(str[c]))
           str[c]=tolower(str[c]);
     else if(isdigit(str[c]))
           str[c]=str[c] + 1;
           else
                 str[c]='*';
}   cout<<str; }
```

f) Write output for the following : (3)

```
struct graph
{
        int  x , y , z;  };
void  main()
{
```

```
graph G1, G2 = {15, 3 };
G1 = G2;
cout<< G1.x++ <<":" <<G2.y--<<endl;
G2.x += 10 ;
G1.y -= 2 ;
cout<<G2.y <<":"<<++G1.x<< endl;
cout<<--G2.y<<":"<<++G2.x<<endl;    }
```

Q8. An array PP[40]32] is stored in the memory along the row with each of the elements occupying 10 bytes. Find out the memory location for the element **PP[18][22]**, if the element PP[7][10] is stored at memory location 5000.

(**3**)

Q9. Go through the following c++ code, find out the **correct possible output(s)** from the suggested output options i) to iv). Also write the **highest value** which can be assigned to variable G :   (2)

```
#include<iostream.h>

#include<stdlib.h>

void main( )

{  randomize( );

int G,H=5;

G=random(H)+30;

for(int i=35;i>G;i--)

cout<<i<<'$';

cout<<i;  }
```

i) 35$34$33$32$31$30$ ii) 35$34$33$32$31

iii) 30$31$32$33$34$35$36   iv) 35$34$33$32$31$30

Q10.a) Write a function TRANSFER(int A[], int B[], int Size) in C++ to copy the elements of array A into array B in such a way that all the negative elements of A appear in the beginning of B, followed by all the positive elements, followed by all the zeroes maintaining their respective orders in array A.   (3)

For example If the contents of array A are:

7, -23, 3, 0, -8,-3,4, 0

The contents of array B should be

-23 , -8, -3, 7, 3, 4, 0, 0

b) Write a function in C++ to print the product of all the non-diagonal negative elements present in a two dimensional array passed as the argument to the function. (2)

c) Details of 20 students of a school are stored in an array of structures. Details include student name of char type , admission no of integer type , date of birth of date type (dd/mm/yy) , total marks out of 500 , percentage to be calculated by program and then grade accordingly (>70 'A' , >=60 and <=70 'B' , >=50 and

<60 'C' ,>=40 and <50 'D' , else 'E') . Make a complete C++ program reading

and then displaying the complete detail of each student one by one on screen. (4)

d) Write the prototype of a function named Area, which take a float as value parameter and return a double type value. The parameter should have a default value 5.2. (2)

e) Write a program to add two matrices. (3)

f) 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 . (3)

g) Write a function int **sum(int x[ ])** to return the sum of odd elements present in an integer array of 20 elements passed as parameter. (3)

Q11. A. Draw a flowchart to display the greater number from teo numbers entered. (3)
b. Explain non-preemptive scheduling with example. (2)
c. What do you understand by Open Source Software? Name two different open source software applications with their purpose.(3)
d. How a system software is different from application software? Explain (2)
e. What is the purpose of Antivirus software? Name ant two popular antivirus software. (2)
f. Explain any two external storage media to store the information. (2)
g. What do you understand by Memory Units. (1)