Ministry of Higher Education
and Scientific Research
University of Technology

Computer Sciences Department

Subject: C++ programming   *Class: first*
Branch: all   *Time: 3 Hours*
Lecturer: Dr.Yossra H. & Anmar A. *Date: 28/5 /2014*

Q1: Answer two of the following   (10 marks)

a: Write C++ program to find the output to the following series by using function :

$$s = 1 + \frac{x}{1!} + \frac{x^2}{2!} + \frac{x^3}{3!} + \ldots + \frac{x^n}{n!}$$

b: Write C++ program to print the following figure:

```
        1
       3 3 3
      5 5 5 5 5
     7 7 7 7 7 7 7
    9 9 9 9 9 9 9 9 9
     7 7 7 7 7 7 7
      5 5 5 5 5
       3 3 3
        1
```

c: Write C++ program to find the sum of the positive integer numbers using a recursive
function sum = 1+2+3+4+ ….+n .

Q2: Draw the flowchart and write complete program to test the prime number or not.

(10 marks)

Q3: Answer one of the following:

a: Write C++ program to swap the main diagonal with the second diagonal of array
a[5][5] .

b: Write C++ program to convert 1D array of size [16] to 2D array that size of [4][4].

(10 marks)

Turn the page

Q4: a: Write C++ program that declares a structure called students which have (number, name, degree, age and address), then read this information for 7 students, finally find and print the largest degree in between. (5 marks)

b: Write a C++ program to sort the numbers in an array a[5] in ascending order.

(5 marks)

Q5: a: Write the output of the following programs with trace *(Only One)*:

```
1: #include<iostream.h>
   void main ()
   {
   int val1=20, val2=40;
   int *p1,*p2;
   p1=&val1;
   p2=&val2;
   *p1=25;
   *p2=*p1;
    p1=p2;
   *p1=50;
   cout << " value1 = = " << val1 << " / value2 = =
   "<< val2;
                                        (5 marks)
```

```
2: #include<iostream.h>
   void main()
   { int a=10;
   a=a>>2;
   a=a<<1;
   cout<<a<<endl;
   a=a^2;
   cout<<a<<endl;
   cout<<(!a?~a:a);
   }
                                (5 marks)
```

b: Correct and find the output:

```
      main()

  I=2 int

  for(cin>>I,i<>10,i-+)

    cout<<'*'

  cin>>i

  i=0
                      (2.5 marks)
```

C: Write C++ program to read integer number, and print the name of the day in a week: (2.5 marks)