

University of Gaziantep  
 Department of Engineering of Physics  
 EP241 MT1 30/10/10  
 Answer all questions. Duration 60 min.

Q1	Q2	Q3	Q4	Q5	Q6	Q7	TOTAL	out of
						xxx		100

To be completed only by the lecturer

### STUDENT

Name :  
 Surname :  
 Id no :

### EDUCATION TYPE:

☐ First Education  
☐ Second Education

#### Question 1 [15]

Write down the output of the program given right.

```
#include <iostream>
#include <cmath>
using namespace std;

#define kph 0.278

int main(){
    enum {T0, T1 = 7, T2, S0, A = 1};
    double v0 = sqrt(double(S0));
    double g = ( A!=0 ? 9.8:10.0 );

    for(int t=T0; t<=T2; t+=2){
        int v = (v0 + g*t) * kph;
        cout << t << '\t' << v << endl;
    }

    return 0;
}
```

#### Question 2 [15]

Write down the output of the program given right.

(Hint: take care when assigning results to operations involving integer division and to type integer variables)

```
#include <iostream>
#include <cmath>
#include <string>
using namespace std;

int main(){
    double a = 25.8, b = 4.3, c = 5.0, r, s, t;
    int i = 7, j = 201, k = 3, L, M;
    string s1 = "ometer", s2 = "therm", s3;

    r = a / b + 3 * k;
    s = i * j / c;
    t = sqrt(5*c);
    L = int(4*c+k) / int(t);
    M = L % k;
    s3 = s2 + s1;

    cout << s3 << '\n';
    cout << r << '\t' << s << '\t' << t << endl;
    cout << L << '\t' << M << endl;

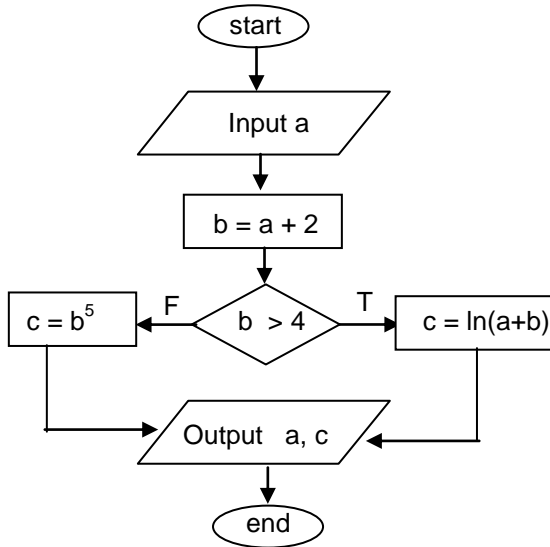
    return 0;
}
```

#### Question 3 [10] Rewrite the following switch block using else if statement

```
switch(TVchannel){
    case 1: cout << "TRT\n"; break;
    case 2: cout << "ATV\n"; break;
    case 4: cout << "CNN\n"; break;
    case 8: cout << "NTV\n"; break;
    default:
        cout << "No channel is assigned\n";
}
```

**Question 4 [20]**

Implement the following flowchart in a C++ program.

**Question 5 [20]**

Write a program that evaluates and outputs the result of the first 90 terms of the following infinite series sum:

$$\pi + \frac{\pi}{2} + \frac{\pi}{3} + \frac{\pi}{4} + \dots$$

Use a while statement.

**Question 6 [20]**

Write a program to evaluate the current  $I$  in the circuit and the voltage drop ( $V_1$  and  $V_2$ ) on each external resistor  $R_1$  and  $R_2$ . The value of the resistances must be read from keyboard. Assume that the battery has an electromotive force of  $V_0 = 12$  V and an internal resistance of  $r = 2 \Omega$ .

