PROGRAMMING AND PROBLEM SOLVING (SE 1105) MIDTERM	A	Grading				
		Q1	Q2	Q3	Q4	Σ

Instructors	ID #	Name-Surname	Time allowed	Date/Room #
Dr. Dindar ÖZ Dr. Kazım ERDOĞDU			80 mins.	November 23, 2023 (18:40-20:00) Y-007, Y-011, Y107, Y111

Notes: If you believe that necessary data or assumptions are missing from the problem statement, make your own assumption(s) and write them clearly.

QUESTIONS

1. (30 pts.) Write the outputs of the following programs.

a) (15pts)

```
#include <stdio.h>

void q1a()
{
   int a = 0, b = 0, c = 1;

   for (a = 0; a < 3; a = a + 1)
   {
      for (b = c; b > a; b = b - 1)
      {
          c = c + 2;
      }
      printf("c:%d\n", c);
   }
   printf("a:%d\n", a);
   printf("b:%d\n", b);
}

void main()
{
   q1a();
   return;
}
```

b) (**15pts**)

```
#include <stdio.h>

int f(int n)
{
   if (n==1)
   {
      printf("1\n");
      return 1;
   } else
   {
      if (n%2==0){
         printf("%d, ",n);
         n = n / 2;
      } else {
         printf("%d, ",n);
         n = 3*n+1;
      }
      return f(n);
   }
}

void main() {
   f(3);
}
```

PROGRAMMING AND PROBLEM SOLVING (SE 1105) MIDTERM	A	Grading				
		Q1	Q2	Q3	Q4	Σ

Instructors	ID #	Name-Surname	Time allowed	Date/Room #
Dr. Dindar ÖZ Dr. Kazım ERDOĞDU			80 mins.	November 23, 2023 (18:40-20:00) Y-007, Y-011, Y107, Y111

2. **(20 pts.)** Write a function that takes two integers, that are supposed to be nonnegative single digit numbers, as parameters and returns the minimum two-digit integer that can be formed using these parameters. If the input integers are not single-digit, or negative or both are 0 then the function should return -1. Some basic example input-output scenarios are given below:

Input	0,0	-7,4 (or 4, -7)	5, 23 (or 23, 5)	9, 2	3, 6	8, 0	0, 1
▼	▼	▼	▼	▼	▼	▼	▼
Output	-1	-1	-1	29	36	80	10

PROGRAMMING AND PROBLEM SOLVING (SE 1105) MIDTERM	A	Grading				
		Q1	Q2	Q3	Q4	Σ

Instructors	ID #	Name-Surname	Time allowed	Date/Room #
Dr. Dindar ÖZ Dr. Kazım ERDOĞDU			80 mins.	November 23, 2023 (18:40-20:00) Y-007, Y-011, Y107, Y111

3. **(25 pts.)** Write a function that takes an integer array and its size as parameters. The function must return the maximum difference between two consecutive elements.
(**Example-1:** If the array= `{ 1, 3, 2, 6, -1, 4, 5, 10 }` Then the maximum difference is between 6 and -1 and the function returns 7.
(**Example-2:** If the array= `{ 2, 5 ,2, 3, 11, 5, 4 }` Then the maximum difference is between 3 and 11 and the function returns `8`.

Note: 1. You can assume that the size of the array will be at least 2.
2. You can not use any library function.

PROGRAMMING AND PROBLEM SOLVING (SE 1105) MIDTERM	A	Grading				
		Q1	Q2	Q3	Q4	Σ

Instructors	ID #	Name-Surname	Time allowed	Date/Room #
Dr. Dindar ÖZ Dr. Kazım ERDOĞDU			80 mins.	November 23, 2023 (18:40-20:00) Y-007, Y-011, Y107, Y111

4. **(25 pts**.) Write a function that takes an integer ***n*** and returns the sum of digits in ***n*** that divide ***n***.

Example: If n:120 then the digits in n that divide n are : 1 and 2 so the function returns 1+2 = 3;
If n:35 then the digits in n that divides n are : 5 so the function return 5

Good luck…