Department of Computer Science & Engineering (CSE)		
INDEPENDENT UNIVERSITY, BANGLADESH (IUB)		
First Assessment Test		
Course Code: CSC 101	**Course Title: Introduction to programming**	**Semester: Summer 2022**
Set: C	Time: 2 Hours	Date: 17.11.2022

General Instructions:

1. Answer **all the questions** in the answer script. Do not write anything on the question paper.
2. Write your **name, Student id, Section and set no** clearly on top of your answer script. Take help from the invigilator in case you need assistance.
3. **Return** the **answer script and the question paper** to the invigilator at the end of your exam.
4. Marks on the right margin indicate full marks.

Specific Instructions:

1. **Sign the Attendance Sheet**. Otherwise, if your answer script is lost you can't claim your attendance.
2. No Mobile / Electronic Devices are allowed in the exam hall. Switch off your mobile phone and put it in your bag.
3. Use of Calculator is STRICTLY prohibited.

1. Trace out the output of the following code: (Marks: 04)

```
x = int(input("Enter a number: "))
y = int(input("Enter a number: "))

while x!=0 and y!=0:
    if x < y:
        y -= x
    else:
        x -= y
print(x, y)
```

Write the output of the code for the following inputs:

```
a. 3, 3
b. 5, 3
c. 2, 6
d. 12, 18
```

2. Trace out the output of the following code: (Marks: 03)

```
i = int(input("Enter a number: "))
j = int(input("Enter a number: "))

while i!=0 and j!=0:
    i /= j
    j = (j-1)/2
    print(f"({i}, {j})")

print(i, i+j)
```

Write the output of the code for the following inputs:

```
a. 5, 0
b. 3, 2
c. 16, 5
```

3. Check out the following code: (Marks: 04)

```
n = int(input("Enter a number: "))

if n < 0:
    n = n * 3
    print(n)
else:
    n = n + 3
    if n % 2 == 1:
        n = n + n % 10
    print(n)
```

Write the output of the code for the following inputs:

```
a. -5
b. 0
c. 7
d. 49
```

4. Check out the following code: (Marks: 04)

```
n = int(input("Enter a number: "))
print(n)
if n>0:
    n = n - 5
```

```
if n<0:
    n = n + 7
else:
    n = n * 2

print(n)
```

Write the output of the code for the following inputs:

```
a. 8
b. -3
c. 1
d. 0
```

5. Solve the following problem: (Marks: 05)

Take 2 intergers from the user first integer represents the hour (a value between 0 and 23) and the second integer represents the minute (a value between 0 and 59) of the hour.

Take 2 more integers from the user, the first integer represents the hour (a value between 0 and 23) and the second integer represents the minute (a value between 0 and 59) of the hour.

Now, write a program that will tell you if the gap between the two times is long enough to eat lunch. (Assume that lunch takes 45 minutes.)

Sample Input:

```
Enter the first hour: 11
Enter the first minute: 00
Enter the second hour: 11
Enter the second minute: 59
```

Sample Output:

```
11:00 to 11:59 is long enough to eat lunch
```

6. Solve the following problem: (Marks: 05)

Take 3 real numbers from the user. Check if one of the numbers is the midpoint between the other two numbers. The midpoint can be any of the three numbers. You must check all the possible cases. If none of the numbers is the midpoint, then print "None of the numbers is the midpoint between the other two numbers".

Sample Input:

```
Enter the first number: 4
Enter the second number: 6
Enter the third number: 8
```

Sample Output:

```
6 is the midpoint between 4 and 8
```

7. Consider the following values for the variables x, y, z and b: (Marks: 05)

```
x = 27
y = -1
z = 32
b = False
```

Write the result of the following expressions:

```
(x > y) or (y > z)
(x == y) and (x <= z)
not (x % 2 == 0)
(x % 2 != 0) or b
b or not b
not (x / 2 == 13) or b and (z * 3 == 96)
not ((x > 0) and (y > 0))
x + y <= 0
y * y >= z
x * (y + 2) == y - (y + z) * 2
```