

**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 = 1
z = 0

while 2 * y <= x:
    y = 2 * y
    z += 1

print(y, z)
```

Write the output of the code for the following inputs:

- a. 1
- b. 6
- c. 19
- d. 39

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

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

```
z = y

while x%z == 0:
    print(f"({x}, {z})")
    x -= z
    z += 1

print(x, y, z)
```

Write the output of the code for the following inputs:

- a. 12, 4
- b. 14, 2
- c. 27, 3

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

```
x = int(input("Enter a number: "))
y = int(input("Enter a number: "))
z = 4

if x+y >= 10:
    z = z + 1
else:
    z = z + 9

if z <= y:
    y += 1

print(x, y, z)
```

Write the output of the code for the following inputs:

- a. 3, 20
- b. 4, 5
- c. 5, 5
- d. 6, 10

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

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

if a * 2 < b:
    a = a * 3
```

```
elif a > b:
    b = b + 3
if b < a:
    b += 1
else:
    a -= 1

print(a, b)
```

Write the output of the code for the following inputs:

- a. 10, 2
- b. 3, 8
- c. 4, 4
- d. 10, 30

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

Take 2 integers from the user first integer represents the month (1 for January, 2 for February, etc, up to 12 for December) and the second integer represents the day (a value between 1 and 31) of the month.

Take 2 more integers from the user, the first integer represents the month (1 for January, 2 for February, etc, up to 12 for December) and the second integer represents the day (a value between 1 and 31) of the month.

Now, you have to write a program that will tell you whether or not the first date comes before the second date.

Sample Input:

```
Enter the first month: 6
Enter the first day: 3
Enter the second month: 9
Enter the second day: 20
```

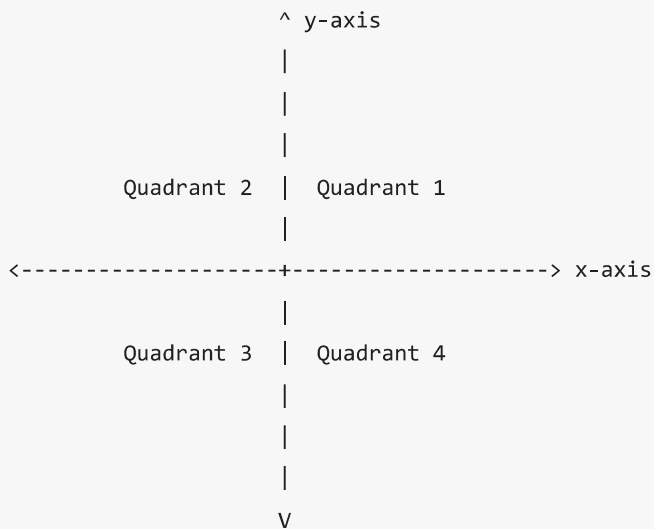
Sample Output:

```
June 3 comes before September 20
```

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

Take 2 real numbers from the user. The first number represents the x coordinate of a point and the second number represents the y coordinate of the point.

Write a program that will tell you in which quadrant the point lies. (Assume that the x and y axes are horizontal and vertical, respectively.)



If the point lies on the x-axis or y-axis, then print "The point lies on the x-axis" or "The point lies on the y-axis" respectively. If the point lies on the origin, then print "The point lies on the origin".

Sample Input:

```
Enter the x coordinate: 3
Enter the y coordinate: 4
```

Sample Output:

```
The point lies in Quadrant 1
```

**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) and (y > z)
not (x % 2 == 0)
b and not b
b or not b
(x < y) == b
not (x / 2 == 13) or b or (z * 3 == 96)
not ((x > 0) and (y < 0))
x + y > 0
y * y <= z
y // y == 1
```