Q 1: Write a program that uses the random module to generate and print 4 random integers between 1 and 100. (6 marks)

Sample Solution:

import random

print("Here are 4 random integers between 1 and 100:")

for i in range(4):

num = random.randint(1, 100)

print(f"Random number {i+1}: {num}")

Q2: What is wrong with the following code? Identify the Problems. (4 Marks)

**num = int(input("Enter a number: ")**

**fact = 0**

**for i in range(1, num):**

**fact \*= i**

**print("Factorial of", num, "is", fact)**

Sample Solution:

1. **Syntax Error** – Missing closing parenthesis in input() function
2. **Incorrect initialization of fact**
   1. It should be initialized to 1, not 0, since multiplying by 0 will always result in 0.
3. **Incorrect range() in the loop**
   1. range(1, num) goes from 1 to num-1, so it misses the last number.
   2. It should be: range(1, num + 1) to include the number itself.
4. **Indentation error in the for loop**
   1. Python requires the loop body to be indented.

Q3: Write a Python program that takes a **numerical score** as input from the user and assigns a letter grade based on the following grading scale: (4 Marks)

|  |  |
| --- | --- |
| **Score Range** | **Grade** |
| 90 and above | A |
| 80 - 89 | B |
| 70 - 79 | C |
| Below 70 | Fail |

Sample Solution:

score = int(input("Enter your score: "))

# Assign grade based on the score

if score >= 90:

grade = 'A'

elif score >= 80:

grade = 'B'

elif score >= 70:

grade = 'C'

else:

grade = 'Fail'

# Print the result

print("Your grade is:", grade)

Q4: What will be the output of each print statement. (6 Marks)

**x = 20**

**y = 7**

**z = 4**

**print("1.", x - y + z \* 2)**

**print("2.", (x + y) \* z)**

**print("3.", x / z + y \* z)**

**print("4.", x / (y - z) \* z)**

**print("5.", (x - z) \* 2 / y)**

**print("6.", x - y + z \* (y / z))**

Sample Solution:

**1. 21**

**2. 108**

**3. 33.0**

**4. 26.666666666666664**

**5. 4.571428571428571**

**6. 20.0**