ISYS 350, Fall 2021, Exam 1 review and sample

I won’t publish the answers to questions on this review. But you may send questions to me and I will answer your questions.

This exam covers the following PowerPoint presentations:
1. Python Introduction
2. Making decision with if statement
3. Complex condition
4. Repetitions (loops)

And Revel assignments 1, 2, 3 and programming assignments 1, 2, 3.

Sample questions:

1. Write an equivalent statement using compound operator: \( X = X + 2 \) __________________

2. Which operation is performed first in the following expression: \( 2*2**2/2 - 1 \)
   a. \( 2*2 \)   b. \( 2**2 \)   c. \( 2/2 \)   d. \( 2 - 1 \)

3. Write a Python expression for this formula: \( 1 + \frac{A^B}{C+D} \) __________________

4. How to determine if the data from an input statement contains valid number?

5. State University calculates students tuition based on the following rules:
   - State residents:
     • Total units taken \( \leq 12 \), tuition = 1200
     • Total units taken \( > 12 \), tuition = 1200 + 200 per additional unit.
   - Non residents:
     • Total units taken \( \leq 9 \), tuition = 3000
     • Total units taken \( > 9 \), tuition = 3000 + 500 per additional unit.

   Complete the following program to compute and show the tuition.

   ```python
   status=input('Enter status, R for resident, NR for non-resident')
   units=float(input('Enter number of units:'))
   ```

5. A program to determine state tax rate is given below. Identify a situation where this program will not return correct tax rate given a state:

   ```python
   state=input("Enter state code:")
   if state == "CA":
   ```
```python
tax= 0.01
elif state=="WA":
    tax=0.015
elif state=="NY":
tax=0.012
else:
tax=0.005
print("Tax rate is:" + " {:2%}".format(tax))
```

6. A program to determine letter grade is given below. If a student’s exam score is 76, what is the grade returned by the program?

```python
score= float(input("Enter exam score: "))
if score >= 90:
    grade= "A"
elif score >= 80:
    grade= "B"
elif score >= 70:
    grade= "C"
elif score >= 60:
    grade= "D"
else:
    grade= "F"
print("Your grade is: " + grade)
```

7. How many times the loop below will be executed? What is the value of counter after the loop?

```python
counter = 1
while counter<5:
counter+=2
print(counter)
```

8. An integer is stored in a variable MyInt. Write the if statement to test if MyInt is divisible by 5 or not and use print() statement to show “Divisible by 5” or “Not divisible by 5”.

```python
if MyInt % 5 == 0:
    print("Divisible by 5")
else:
    print("Not divisible by 5")
```

9. A Business student with GPA 2.5, will the complex condition below evaluate to true or false?

```python
Major='BUS' or Major='Sci' and GPA>3.0
```

10. Problems similar to assignment 1, 2 and 3 and examples and practice problems in the PowerPoint slides.

11. The program below compute the sum from 1 to N:

```python
sum=0
counter = 1
N = int(input("Enter value N: "))
while counter <= N:
```
sum += counter
counter+=1
print("The sum of 1 to "+str(N)+ " is: " + str(sum))

Rewrite this program using a for loop.

12 Complete the program below to compute and print the sum of all numbers between the starting number and the end number:

   start = int(input('Enter the starting number:'))
   end= int(input('Enter the ending number:'))
   Sum = 0