

ISYS 350, Spring 22, Exam 1 review and sample

I won't publish the answers to questions on this review. But you may send questions to me to get answers.

This exam covers the following PowerPoint presentations:

1. Python Introduction
2. Making decision with if statement
3. Complex condition
4. Repetitions (loops) – up to slide # 21

And Revel assignments 1, 2, 3, 4 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: $1 + X^{\frac{AB}{C-D}}$ _____

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 ≤ 12 , tuition = 1200
 - Total units taken > 12 , tuition = 1200 + 200 per additional unit.
- Non residents:
 - Total units taken ≤ 9 , tuition = 3000
 - Total units taken > 9 , tuition = 3000 + 500 per additional unit.

Complete the following program to compute and show the tuition.

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

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

```
state=input("Enter state code:")
if state == "CA":
    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))

```

7. 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?_____.

```

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

```

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

```

Sum=0
counter = 1
while counter<5:
    sum+=count
    counter+=2
print(counter, sum)

```

9. 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".

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

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

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

12. In 2022, the Social Security FICA tax is based on the first \$147,000 paid at the rate of 6.2% with a maximum amount withheld of \$9114(\$147,000 x 6.2%). Complete the program below to compute the Social Security FICA tax

```

Salary=float(input('Enter your salary:'))

```

