

CPSC 231: Extra midterm review questions

Extra-extra review questions: They are meant to provide you with some extra practice so you need to actually try them on your own to get anything out of it. For that reason, solutions will not be posted and I will not just "email you the solutions". However, it really should not be a big loss because I have taught you how you can find out the answers for yourself:

- For the 'tracing' questions where you have to determine the output of a program then you can always type in the program or expression and run it yourself. (Copy and paste works well out of PDF files).
- The 'writing' questions (e.g. write a query or write a program) are a little trickier but you can still check your answers by testing the results e.g. does your program produce the results specified in the question.
- If you are still unsure of things after you have attempted a question (e.g. you can't figure out why you got a given result after typing it in and running the program), then you can ask (just be sure to show me the work that you have done so I can see how far that you have gotten and perhaps where you are having problems). Again, do not just coming in cold without making an attempt.

Multiple choice questions

- 1) The UNIX command _____ could be used to see the contents of a file.
 - a) cd
 - b) ls
 - c) more
 - d) see
 - e) None of the above commands would allow you to view a file.
- 2) In terms of a Python program which of the following is true about the variable 'num' in the program below?

```
num = 3.14
```

- a) num is a floating point variable
- b) num is an integer variable
- c) num is a real number variable
- d) num is a string variable
- e) The type of information associated with variable num cannot be determined solely from the above program

Determine the output of Questions 3 – 12

3)

```
x = "007"  
print("x=%s" %x)
```

- a. 007
- b. x=%s
- c. x=7
- d. x = 007
- e. x = 007

4)

```
name = input ("Type in your name: ")  
print("Name:", name)
```

- a. Name name
- b. Name: name
- c. Name: James Tam
- d. Name: James Bond
- e. None of the above selections correctly and completely characterize the output

5)

```
x = True  
y = False  
z = False  
print(not(x and y) or not(((x or y) or z)))
```

- a. False
- b. True
- c. not(x and y) or not(((x or y) or z))
- d. (I think I should have taken that "Spring Intro to tennis course instead"
- e. None of the above

6)

```
x = True  
print(not(not(x)))
```

- a. x
- b. False
- c. True
- d. not(not(x))
- e. None of the above

7)

```
x = True
print(not(not(not(x))))
```

- a. x
- b. False
- c. True
- d. not(not(x))
- a. None of the above

8)

```
x = 7/8
print("%.1f %0.2f" %(x,x))
```

- a. 7/8
- b. 0.9 0.9
- c. 0.88 0.88
- d. 0.9 0.88
- e. %.1f %0.2f

9)

```
print("%4d%-3d" %(123, "123"))
```

- a. <SP>123123
- b. 123<SP>123
- c. <SP>123123<SP>
- d. %4d%-3d
- e. The above program contains a syntax error

10)

```
x = "888"
print("%4s%-5s%%" %(x,x))
```

- a. 888
- b. <888<SP><SP><SP>888%
- c. <SP>888888<SP><SP>%
- d. <SP>888888<SP><SP>%%
- e. %4s%-5s%%

11)

```
''' print("a")'''  
print("b")  
# print("c") # print("d")  
# print("e")
```

- a. a
- b. b
- c. bd
- d. a b c d e
- e. None of the above

12)

```
y = "axe"  
print("1",end="")  
if y in ("axe"):  
    print("2",end="")  
    if y in ("axial"):  
        print("3",end="")  
    if y in ("axenar"):  
        print("4",end="")  
        if "y" in ("axis"):  
            print("5",end="")
```

- a. 1
- b. 12
- c. 123
- d. 124
- e. 12345

13) Which operator is used for finding the remainder of a division operation?

- a) a. *
- b) %
- c) exp()
- d) exponent()
- e) None of the above

Determine how many times the loops in Question 14 - 16 will execute.

14)

```
i = 1
while (i <= 7):
    print(i)
j = 11
```

- a) 1
- b) 7
- c) 8
- d) This loop will never execute
- e) This is an endless loop

15)

```
for i in range (0, 13, 3):
    print (i)
```

- a) 4
- b) 5
- c) 6
- d) 13
- e) 14

16)

```
i = 1
while (i < 7):
    print(i)
    i = i + 1
```

- a) 0
- b) 1
- c) 6
- d) 7
- e) This is an endless loop

17) What's the output of the following loop?

```
x = 1
while (x <= 3):
    x = x + 1
print(x)
```

- a) 1
- b) 3
- c) 4
- d) x
- e) This is an endless loop

Short answer 1:

In the space provided you are to specify the output of the following program.

```
print("t\t\\n")
print('...')
# Write your answer here
```

End of answer space

Question 2 (if material was covered in lecture)

What's the output of the following program?

```
x = "sheen"
y = 51 z =
1/3
print("%d\nd\t%s" %(-7,"miley"))
print("\%6s\'-4%-3d%.2f" %(x,y,z))
# Write your answer here
```

End of answer space

Question 3:

The following is a modification of an actual tax system. If \$10,822 or less then you pay no income tax. Income over \$10,822 up to and including 43,561 is taxed at 15%. For income more than \$43,561, but not more than \$87,123, the tax rate is 22%. For income more than \$87,123, but not more than \$135,054, the tax rate is 26%. For income is more than \$135,054, the tax rate is 29%. For the purposes of this question a person will only be classified into one of the above tax brackets e.g., a person earning \$100,000 pays a 26% tax rate. Modify the program below so that it calculates and displays: the amount of tax owed and income after taxes have been deducted.

```
grossIncome = 0
taxesOwed = 0
incomeAfterTaxes = 0
grossIncome = int(input("Enter your yearly income: "))
(Write you answer on the next page; on an actual exam you could use the above
space for rough work).
# Write your answer here
```

```
# End of answer space
```

```
incomeAfterTaxes = grossIncome - taxesOwed
print("Gross income $" % grossIncome)
print("<Less tax $" % taxesOwed)
print("Income after taxes $" % incomeAfterTaxes)
```


Question 5:

(From the University of Calgary calendar 2012 - 2013 Page 338). The prerequisites for CPSC 331 are the following: “One of Computer Science 219, 233, 235 [JT: the calendar includes Computer Engineering 339 but for simplicity you can exclude it from this question] and one of Mathematics 271 or 273”. Modify the following program so that the message “pre-requisites met” appears if the student has taken the appropriate course and the message and the message pre-requisites not met” otherwise. You can assume that the course information will come in as a string: Computer Science courses will be abbreviated as CPSC, math courses abbreviated as MATH. The format will be as follows <Course name><Space><Course number> e.g. CPSC 231

```
cpscCourseTaken = input("What Computer course have you taken: ")  
mathCourseTaken = input("What Math course have you taken: ")
```

Write you answer on the next page, on an actual exam you could use the above space for rough work).

Write your answer here

End of answer space

Five program traces: specify their output no matter how loopy it may be.

First program

```
x = 1
while (x <= 2):
    y = 1
    while (y <= 4):
        print(x,y)
        y = y + 1
    x = x + 1
```

Second program

```
x = 1
y = 1
while (x <= 2):
    while (y <= 4):
        print(x,y)
        y = y + 1
    x = x + 1
```

Third program

```
x = 1
while (x <= 2):
    y = 1
    while (y <= 4):
        y = y + 1
        print(x,y)
    x = x + 1
```

Fourth program

```
x = 1
while (x <= 2):
    y = 1
    while (y > 0):
        print(x,y)
        y = y + 1
    x = x + 1
```

Fifth program

```
x = 1
while (x < 3):
    y = 1
    while (y <= 2):
        z = 1
        for z in range (1,4,1):
            print(x,y,z)
        y = y + 1
    x = x + 1
```