

Here are some practice quiz questions. When it says “trace the code” you are to draw the diagrams of variables, show their changing values and display the output just as I do in class. REMEMBER THE QUIZ IS CLOSED BOOK. A good way I recommend preparing is to first study your notes, then try the practice questions just as if you were taking a quiz (i.e. with your notes closed), then double check your work against your notes.

Note:

- Make sure you are applying the order of precedence to expression evaluations.
- When writing programs you need not add comments, but your output should be informative for the user.
- You don’t need to trace the code that you are asked to write, but if you have time, it is a good idea trace it to double check your work.
- I make think up a new type of question that is not similar to any of these, but if you understand these questions you will be well prepared for anything that comes along.
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1) The following piece of code is to output "valid" if the value in num is between 10 and 15 inclusive and "invalid" otherwise. Does the code segment work correctly. If your answer is yes, justify your answer, if it is no also justify your answer and show an example where it would not work.

```
if (10<= num) or (num <= 15):  
    print "valid"  
else:  
    print "invalid"
```

2) Trace the following code and show the output

```
X = 20  
Y = 13  
Z = 3  
W = 4  
Num1 = X % Y  
print 'Num1 is ', Num1  
Num2 = X / Y  
print 'Num2 is ', Num2  
Num3 = Z + W * Z + x  
print 'Num3 is ', Num3  
Num4 = X / float(Y)  
print 'Num4 is ', Num4  
Num5 = float( X / Y)  
print 'Num5 is ', Num5;  
Z = Z * 3 + Z  
print Z
```

3) Assume a hotel has 5 floors, with rooms on all 5 floors. The rooms on the first floor are numbered 100- 125, the second floor 200-225 etc. Write a python script that will ask the user to input their room number and your program will output the number of their floor (i.e. 1 if the room is on the first floor, 2 if the room is on the second floor etc)

4) Assume that a salesperson makes a flat rate of \$400 a week plus a 10% commission on his/her sales. Write a python script that will ask the person to input their total sales for the week, and then output their base pay, their commission earned, and their total pay (base and commission).

5) Trace the following code and show the output

Show Trace Here

```
W=10
X = 10
Y = 7
Z = 37
Num1 = float (Z / 10) + Y * 2 + Y
print 'Num1 is ', Num1
Num2 = Z % X
print 'Num2 is ', Num2
X = X + (2 + Y) + X * 2
print ' X is ', X
Num3 = Z / float(W)
print 'Num3 is', Num3
```

6) A banquet facility wants a python script to determine how many tables are needed for a given size of party. 10 people can sit at a table. Your program is to ask the user to input the number of people that will attend a party, and output the number of full tables and the number of extra people that will need to be “squeezed in”. For example, if the party size is 64, there will be 6 full tables and 4 extra people. You may assume that the minimum party size is 10. Be sure to use good programming style. You need not comment.

7) The same banquet facility wants a python script to calculate the cost of food and drink for a banquet. The price of a dinner for an adult is \$22.50 and the price of a dinner for a child is \$10.50. There is an addition beverage charge of \$2.00 per person. You are to ask the user to input the number of adults and children, and your program should output the total cost for the dinners, the total beverage charge and the total overall cost. Note, that the user will only input the number of children and adults. Be sure to use good programming style. You need not comment. (15 pts)

8) Your python program is to ask a user for the average miles per gallon their car achieves, the size of their gas tank (in gallons), the current price for a gallon of gas and the length of their planned trip. Your python script is to output the number of gallons of gas the trip should require (based on the average mpg provided), the estimated cost of the gas for the trip and the distance the car can travel on a tank of gas. Be sure to use good programming style.

9) You are to write a small program to calculate charges based on a promotion an on-line retailer is running. We will be making some simplifying assumptions. Assume the retailer has the following promotion: If a customer purchases 2 items, they will receive 50% off the price of the lower of the two items. If they purchase only 1 item, they will receive 10% off that item. Your program is to prompt the user to enter the cost of the first item and then the second item. If they are only purchasing 1 item, they will enter 0 for the cost of the second item. Your program should output the original cost of the items, the discount and the total final cost, with brief notations explaining the output. You may assume that the user enters valid input. Use good programming style, although you need not comment.

10) A restaurant automatically adds an 18% tip to the final charge for any groups of 6 people or more. Write a program which will prompt the user to the appropriate information and calculate and output the appropriate final charge.

11) Write a program that will prompt the user to enter an even number. If the number was even, your program is to output the phrase "A big even number" if the number entered is larger than 1000 and is to output "A small even number" if the number is 1000 or less. If the number was not even, the program should simply output "Error-entered wrong number".

12) Trace the following code and display the output where indicated. For full credit, you must show all the representations of the variable spaces as we do in class.

```
X = 10
Y = 3
W = 4
A = X / Y
print "A = ", A
B = float(X) / Y
print "B = ", B
C = X % Y
print "C = ", C
Y = Y + Y
print "Y = ", Y
Z = X + Y * W / 2 - 4
Print Z
if W < X:
    if Y != 12:
        print "Here 1"
    else:
        print "Here 2"
else:
    print "Here 3"
```

OUTPUT

13) The deli department of a supermarket regularly runs a "Slice the Bologna" sale where all lunchmeat is on sale for 15 percent off. You are to write a program that will simulate printing out price labels for this sale. The deli worker will enter the price of the lunchmeat per pound and the weight of the lunchmeat purchased in pounds (for example .5 for half a pound). Your program should output the final price (that is, with the discount applied) and the amount of money saved, with brief but descriptive text indicating what the numbers mean. Nothing else should be output.

14) The Happy Cupcake Company specializes in delivering cupcakes to business offices for office parties. They only sell full boxes of cupcakes, each containing a dozen cupcakes. They need a program that will help a person taking phone inquiries answer questions about how many boxes of cupcakes to order. The cupcake company estimates

that the average cupcake consumption is 2 per person. You are to write a program that, given the number of people attending a party, will calculate the number of **boxes** of cupcakes recommended using the following guidelines: Given the number of people and using the recommended number of cupcakes per person, if the number of extra cupcakes over the full boxes is 5 or more, they recommend getting a full box extra. So for instance, if the total number of cupcakes estimated was 14, that would be 1 full box, with 2 cupcakes left over, so the bakery would recommend getting just 1 box. If however, the number was 18 cupcakes, that would be 1 full box with 6 cupcakes left over, so they would recommend getting 2 boxes. Also, if the number of recommended boxes turns out to be zero, they will recommend 1 box. In addition, if the order is for more than 5 boxes, there is no delivery charge, otherwise there is a \$10 delivery charge. Your program is to prompt the user for the appropriate input and output: the recommended number of cupcakes, the recommended number of boxes and either the string "There is no delivery charge" or "There will be a \$10.00 delivery charge". Remember good programming practices.

15.) Three types of grades can be assigned for a pass/fail course: high pass, low pass and fail. Students whose final score is between 80-100 receive a high pass, between 70-79 a low pass and below 70 a fail. Write a program that will prompt the user to enter a student's score and then output their appropriate high pass/pass/fail grade.