MidTerm Exam

Programming Concepts Chapter 1, 2, 7

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**Section 1 True or False:**

1 When you pass a variable as an argument to the print function, you do not enclose the variable name in quote marks.

True

2 A bit that is turned off is represented by the value **-1**.

False

3 The main reason to use secondary storage is to hold data for long periods of time, even when the power supply to the computer is turned off.

True

4 All programs are normally stored in ROM and are loaded into RAM as needed for processing.

True

5 The Python language uses a compiler which is a program that both translates and executes the instructions in a high-level language.

False

6 Comments in python begin with the #character.

True

7 According to the behavior of integer division, when an integer is divided by an integer the result will be a float.

False

8. In python you can break a statement into multiple lines.

True

9. Since a named constant is just a variable, it can change any time during the program’s execution.

False

10 You cannot sort lists descending so you would sort ascending and then reverse.

False

11 The index -1 identifies the next to the last element in the list.

False

12 The remove method removes only the first occurrence from the list of a duplicate element.

True

13 Invalid indexes do not cause slicing expressions to raise an exception.

True

**Section 2 Matching**

1. Choose the answer on the right and put the letter in the blank space provided:
2. put in a specific index
3. remove from a specific index
4. adds to the end of the list
5. put items in ascending order
6. removes first occurrence of an item
7. returns the location of the first instance of
8. \_\_c\_\_\_Append
9. \_\_f\_\_\_Index
10. \_\_d\_\_\_Sort
11. \_\_e\_\_\_Remove
12. \_\_b\_\_\_del statement
13. \_\_a\_\_\_insert
14. Number 1 – 5 the correct order for the Program Development Cycle:

Test the program

Correct logic errors

Correct syntax error

Design the program

Write the code

**Section 3 Choose correct answer (Highlight your choice or type in answer)**

1 The smallest storage location in a computer's memory is known as a

1. Byte
2. Ketter
3. Switch
4. bit

2 The largest value that can be stored in one byte is:

1. 255
2. 128
3. 8
4. 6420

3 To create a python program you can use:

1. A text editor
2. A word processor if you save file as .docx
3. IDLE
4. Excel

4 Which type of error prevents the program from running?

1. human
2. Logic
3. syntax
4. Grammatical

5 A(n) \_\_\_\_\_\_algorithm\_\_\_\_\_\_ is a set of instructions that a computer follows to perform a task.

6 In \_\_\_\_\_\_script\_\_\_\_\_\_\_\_\_ mode, the interpreter reads the contents of a file that contains Python statements and executes each statement.

7 The term \_\_\_\_\_\_\_\_hardware\_\_\_\_\_\_\_\_\_\_ refers to all of the physical devices that make up a computer.

8 What is the informal language used by programmers to create models of programs that has no syntax rules and is not meant to be compiled or executed?

1. Flowchart
2. Algorithm
3. Source code
4. Pseudocode

9 The \_\_\_\_\_input\_\_\_\_\_\_\_\_function reads a piece of data that has been entered at the keyboard and returns that piece of data, as a string, back to the program.

10 What is the output of the following command, given that value1 = 4.0 and value2 = 14?

Print(value1 \* value2)

1. 56
2. Value1 \* value2
3. 56.0
4. 4.0 \* 14

11) Which of the following will display 20%?

1. Print(format(0.2, ‘%’)) <enter>
2. Print(format(20, ‘ .0%’)) <enter>
3. Print(format(0.2 \* 100, ‘ .0%’)) <enter>
4. Print(format(0.2, ‘%’)) <enter>

Both a and b are the same. They would print 20.000000%

12 Which format statement below is formatted properly for for width in a float?

1. format(12345.6789, ‘.2f, 12’)
2. format(12345.6789, ’12, .2f’)
3. format(12345.6789 ’12, .2f’)
4. None, you only use field width in format when not floating

13 In the following example which is correct to print an integer number with no special formatting?

1. format(123456, ‘d’)
2. format(123456, ‘,d’)
3. format(123456, ‘ ‘)
4. None, with integer you would use f

14 Which is not an escape character?

1. \n
2. \t
3. \’
4. \”
5. \\
6. They are all escape characters

15 What would this print out? Print(‘”Isn\’t,” they said.’)

1. Isn’t, they said.
2. “Isn’t,” they said.
3. “Isn’t, they said.”
4. “Isn’t,” they said

16 String indexing: word = ‘monumental’ write the correct index character

1. word[4] \_\_\_m\_\_\_
2. word[-3] \_\_\_t\_\_\_
3. word[-1] \_\_\_l\_\_\_

17 Essay: Explain what this means when indexing: word = ‘monumental’ ( Ex: from the beginning, or left..... )

1. word[ :8]

from the beginning to character position 8

1. word[ : ]

from left to right

from the beginning character to the end character

1. word[-4 : ]

from the 4th to last character to the end

18 Write **STATEMENTS!** Not a program. I am just looking for the statement you would write for the below:

1. Assign football to fb

football = fb

1. Write a statement to *get* users weekly income (Chapter 2 input from keyboard)

weekly\_income = input(‘What is your weekly income: ‘)

1. Favorite = blue Write a print statement using the variable prints expression method

print(‘My favorite color is’, Favorite)

1. Write a statement that passes an argument to the print function to remove spaces so that the words Las Vegas Nevada print out without spaces.

print(‘Las’, ‘Vegas’, ‘Nevada’, sep=’’)

19 Write one statement, that creates one variable only. The statement should get the numbers of hours worked by someone as an integer.

hours\_worked = 40

20 Write the statement you would type in Visual code or IDLE (NOT interpreter mode) to display to the screen the following:

1. The ‘type’ of: numbers = [1, 2, 3, 4, 5]

print(type(numbers))

1. The ‘type’ of : numbers = (1, 2, 3, 4, 5)

print(type(numbers))

1. The length of numbers = [1, 2, 3, 4, 5, ]

print(len(numbers))

21 After the execution of the following statement, the variable price will reference the value:

Price = int(68.549)

1. 69
2. 68
3. 68.55
4. 68.6

22 Which method or operator can be used to concatenate lists? \_\_\_\_\_+\_\_\_\_\_\_\_\_

23 Which method can be used to covert a list to a tuple? \_\_\_\_\_\_\_\_\_\_\_tuple()\_\_\_\_\_\_\_\_\_.

24 A \_\_\_\_\_\_slice\_\_\_\_\_\_\_ is a span of items that are taken from a sequence

25 Lists are \_\_\_\_\_mutable\_\_\_\_\_\_\_\_\_\_\_\_\_, which means their elements can be changed in a program.

26 A(n) \_\_\_\_\_\_\_\_\_list\_\_\_\_\_\_\_\_\_\_is an object that holds multiple items of data.

1. List
2. Tuple
3. Sequence
4. Index

27 \_\_\_\_\_\_\_\_\_variable\_\_\_\_\_\_\_\_\_\_\_\_\_\_= expression.

28 When working with multiple sets of data, one would use a \_\_\_\_\_\_\_two dimensional\_\_\_\_\_\_\_\_\_\_list.

29 Slicing & Step (Chapter 7): put the correct answer on line below.

Numbers = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12]

1. Numbers[3:8] \_\_\_\_\_\_\_\_\_\_\_\_\_\_4,5,6,7,8\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Numbers[3:8:2] \_\_\_\_\_\_\_\_\_\_\_\_\_4,6,8\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Numbers[-5::3] \_\_\_\_\_\_\_\_\_\_\_\_\_8, 11\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

30 List Slicing:

days = [‘Sunday’, ‘Monday’, ‘Tuesday’, ‘Wednesday’, ‘Thursday’, ‘Friday’, ‘Saturday’]

if I wanted to see only Monday thru Friday fill in slice expression below.

1. Weekdays = days[1:6]

If I wanted to see midweek Tuesday through Thursday only, fill in slice expression below:

1. Midweek = days[2:5]

**Section 4 Programs: These are to be written as they would need to be written to run in Visual Code or IDLE, not interpreter mode!**

1. Label each part appropriately. Ask if you have a question!
2. Make a Flowchart
3. Write the Program

Your boss wants you to write a program that will get input from the user and display the information asked using the variable but printing the expression method we have used all semester. You are not creating any fake answers.

Boss, “Our restaurant is using ipads now for patrons to pay for their bill. After they have finished their meal the waitress will give them a bill with the total for their entire parties food and drinks. The total will not include the 20% tip or 7% sales tax. Write a program that will ask the user to enter the amount from their bill and then it will calculate the tip and tax. \*tipping is pre-tax

Please **display** to the customer on separate lines:

1. The total you have entered:
2. The tip on your bill
3. The tax on your bill
4. The grand-total of your bill
5. A final line that says “If this is acceptable please sign below”

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# Initializing the variables

bill\_amount = 0.0

tip\_amount = 0.0

tax\_amount = 0.0

grand\_total = 0.0

# Initializing the constant named variables

TIP = 0.20

TAX = 0.07

# Asking the customer to input the bill amount

bill\_amount = float(input('Please enter the bill amount: '))

# Calculating the tip amount by taking the bill amount and multiplying by the tip percentage(0.20)

tip\_amount = bill\_amount \* TIP

# calculating the tax amount by taking the bill amount and multiplying by the sales tax

tax\_amount = bill\_amount \* TAX

# Calculating the grand total by adding the bill amount, the tip amount and the tax amount

grand\_total = bill\_amount + tip\_amount + tax\_amount

# Displaying the message 'The total you have entered:' with the amount entered

print('The total you have entered: $', format(bill\_amount, ',.2f'), sep='')

# Displaying the tip, tax, and the grand total

print('The tip on your bill: $', format(tip\_amount, ',.2f'), sep='')

print('The tax on your bill: $', format(tax\_amount, ',.2f'), sep='')

print('The grand-total of your bill: $', format(grand\_total, ',.2f'), sep='')

#Diplaying the message "If this is acceptable please sign below"

print('"If this is acceptable please sign below"')

2- Write a program that will ask the user to enter the amount of a purchase.

The program should then compute the state and county sales tax.

Assume the state sales tax is 5 percent and the county sale tax is 2.5 percent.

The program should **display** on separate lines**:**

1.the amount of the purchase,

2. the state sales tax,

3. the county sales tax,

4. the total sales tax,

5. The total of the sale (which is the sum of the amount of purchase plus the total sales tax).

Make sure all print statements contain full sentences explaining what the figure is and is written so the variable prints the expression.

# Initializing the variables

purchase\_amount = 0.0

state\_sales\_tax\_amount = 0.0

county\_sales\_tax\_amount = 0.0

total\_sales\_tax\_amount = 0.0

grand\_total = 0.0

# Initializing the constant named variables

STATE\_SALES\_TAX = 0.05

COUNTY\_SALES\_TAX = 0.025

# Asking the customer to input the purchase amount

purchase\_amount = float(input('Please enter the amount of the purchase: '))

# Calculating the state sales tax amount by taking the purchase amount and multiplying by the state sales tax percentage

state\_sales\_tax\_amount = purchase\_amount \* STATE\_SALES\_TAX

# Calculating the county sales tax amount by taking the purchase amount and multiplying by the county sales tax percentage

county\_sales\_tax\_amount = purchase\_amount \* COUNTY\_SALES\_TAX

# Calculating the total sales tax amount by taking the state sales tax amount and adding it to the county sales tax amount

total\_sales\_tax\_amount = state\_sales\_tax\_amount + county\_sales\_tax\_amount

# Calculating the grand total by adding the purchase amount and the total sales tax amount

grand\_total = purchase\_amount + total\_sales\_tax\_amount

# Displaying the total of the purchase

print('The total of the purchase: $', format(purchase\_amount, ',.2f'), sep='')

# Displaying the state sales tax amount

print('The total of the state sales tax: $', format(state\_sales\_tax\_amount, ',.2f'), sep='')

# Displaying the county sales tax amount

print('The total of the county sales tax: $', format(county\_sales\_tax\_amount, ',.2f'), sep='')

# Displaying the total sales tax amount

print('The total sales tax: $', format(total\_sales\_tax\_amount, ',.2f'), sep='')

# Displaying the total of the sale

print('The total of the sale: $', format(grand\_total, ',.2f'), sep='')

**BONUS 5 Points**: (No partial points for this Bonus)

Write a flowchart for the program above.

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**BONUS 10 Points:** (Partial points possible for this bonus)

Write a program that converts Celsius temperatures to Fahrenheit temperatures. The formula is as follows:

F = C + 32

The program should ask the user to enter a temperature in Celsius, then display the temperature converted to Fahrenheit.

# Initializing variables

celsius = 0.0

fahrenheit = 0.0

# Asking useer to enter a temperature in celsius

celsius = float(input('Enter Celsius Temperature to be converted: '))

# Calculating the conversion from celsius to fahrenheit by taking the celcius entered multiplying it by 1.8 and then adding 32

fahrenheit = (celsius \* 1.8) + 32

# Displaying the temperature converted to Fahrenheit

print('The temperature converted to Fahrenheit is:', int(fahrenheit), 'degrees')