COME 103 Computer Programming I

Lab - 3

23 October 2018

1. TRUE / FALSE QUESTIONS

_____Python allows programmers to break a statement into multiple lines.

_____Python formats all floating-point numbers to two decimal places when outputting with the `print` statement.

_____The `\t` escape character causes the output to skip over to the next horizontal tab.

_____In Python, the first character of a variable name cannot be a number.

_____The `turtle.size(width, height)` command is used to specify a size for the graphics window.

2. COMPLETION QUESTIONS: Fill in the blanks.

a) The _____ specifier is a special set of characters that specify how a value should be formatted.

b) When applying the `.3f` formatting specifier to the number `76.15854`, the result is _____.

c) Python uses _____ to categorize values in memory.

d) The _____ statement is used to set the window's background color.

3. ALGORITHM WORKBENCH QUESTIONS

a) Assume the variable `sales` references a float value. Write a statement that displays the value rounded to two decimal points.

b) Write a turtle graphics statement that draws a circle with a radius of 75 pixels.

c) Write the turtle graphics statements to draw a square that is 100 pixels wide on each side and filled with the color blue.

MULTIPLE CHOICE QUESTIONS

4. The Python turtle is initially positioned in the _____ of a graphics window and it first appears, by default, to be heading _____.

a) center, up

b) top left corner, east

c) bottom left corner, down

d) center, east

5. Which mathematical operator is used to raise 5 to the second power in Python?

a) `/`
b) `**`
c) `^`
d) `~`

6. In a print statement, you can set the _____ argument to a space or empty string to stop the output from advancing to a new line.

a) stop
b) end
c) separator
d) newline

7. After the execution of the following statement, the variable `sold` will reference the numeric literal value as (n) _____ data type.

```
sold = 256.752
```

a) Int
b) Float
c) Str
d) Currency

8. What is the output of the following print statement?

```
print 'I\'m ready to begin'
```

a) `Im ready to begin`
b) `I\'m ready to begin`
c) `I'm ready to begin`
d) `'I\'m ready to begin'`

9. Which of the following will display `20%`?

a) `print(format(20, '.0%')) <enter>`
b) `print(format(0.2, '.0%')) <enter>`
c) `print(format(0.2 * 100, '.0%')) <enter>`
d) `print(format(0.2, '%')) <enter>`

10. After the execution of the following statement, the variable price will reference the value _____.

```
price = int(68.549)
```

a) `68`
b) `69`
c) `68.55`
d) `68.6`

11. What is the output of the following command, given that `value1 = 2.0` and `value2 = 12`?

```
print(value1 * value2)
```

a) `24`
b) `value1 * value2`
c) `24.0`
d) `2.0 * 12`

PROGRAMS

12. A car's miles-per-gallon (MPG) can be calculated with the following formula:

```
MPG = Miles driven / Gallons of gas used
```

Write a program that asks the user for the number of miles driven and the gallons of gas used. It should calculate the car's MPG and display the result.

13. Body mass index (BMI) is an indirect measure of a person's body fat. In SI units (metric system) BMI is defined as the weight in kilograms divided by height in meters squared

$$BMI = (weight\ (kg) / [height\ (m)]^2).$$

For adults, an ideal BMI is between 18.5 and 24.9. A person with a BMI over 24.9 is considered overweight. A person with a BMI under 18.5 is considered underweight.

Write a complete Python program that reads the weight of a person from standard input (keyboard) and height of a person then prints the BMI to standard output (screen).

14. Use the turtle graphics library and write a program that reproduce the following object shown in the figure. You may choose size of the square shape as 200 pixel and radii of the circles as 50 pixels.