

## CS 149: Programming Fundamentals James Madison University Practice Written Exam #1

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Name: \_\_\_\_\_ Signature: \_\_\_\_\_

1. (12 points) Indicate whether each of the following statements is true or false:

- i. \_\_\_\_\_ input, print, and import are all examples of Python Language Keywords.
- ii. \_\_\_\_\_ In the Python statement `x = input("Enter number:");` `x` is the name of a variable.
- iii. \_\_\_\_\_ A variable cannot be re-used or have its value changed.
- iv. \_\_\_\_\_ All programs must include a print statement.
- v. \_\_\_\_\_ Comments can be used by the Python interpreter to help find logic errors in a program.
- vi. \_\_\_\_\_ This is a stylistically-correct Python variable name: `My_list`

2. (12 points) Choose the best answer to each of the following:

- i. \_\_\_\_\_ In order to run, a Python application must have
  - a) valid syntax
  - b) docstrings
  - c) inline comments
  - d) integer variables
- ii. \_\_\_\_\_ When using the `+` operator,
  - a) You may add `int` and `str` types
  - b) You may use it to indicate sign, positive or negative
  - c) both of the above
  - d) neither of the above

iii. \_\_\_\_\_ The assignment operator is used to

- a) indicate the type of a variable
- b) combine two data values
- c) store an object in a variable
- d) determine the remainder

3. (12 points) Vocabulary Matching

_____	variable	A) The region of the program where a variable is accessible.
_____	expression	B) The order in which certain operations are evaluated.
_____	literal	C) Newlines, tabs, and other “invisible” characters.
_____	operator	D) A segment of code that evaluates to some value.
_____	module	E) A Python file that may be imported into another Python program.
_____	precedence	F) A symbol that represents a computation like addition.
_____	scope	G) An object that is written directly into the code such as the 3 in the statement <code>x = 3</code> .
_____	whitespace	H) An actual value written directly in the source code.

4. (15 points) Write a Python statement that: i. Assigns 7 to the variable count.

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ii. Set a variable named happy, equal to the int value 3, and assign the value happy minus 3 to a variable named sad.

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iii. Creates a list containing the values "Bob", "John", "Jim" and assigns the result to a variable named names.

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iv. Adds to the list stored in names the value "Alice".

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v. Creates a tuple containing the strings "red", "green" and "blue" and stores it in a variable named colors.

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vi. Prints the last entry in the tuple stored in colors.

5. (12 points) Evaluate the following expressions, and indicate the data type and value of the result.

Write ERROR in both columns if there is a syntax error.

	Type	Value
<code>-5 + 1</code>		
<code>int(-(5 / 4))</code>		
<code>1 + 6 + " is " + 3 + 4</code>		
<code>15 % 4</code>		
<code>"Hello" * 2</code>		
<code>(9 / 2.0) * 2</code>		

6. (15 points) What is the output of the following program? (It compiles and runs without error.)

```
width = 3
length = 2
area = width * length
area = 10
actual_area = width * length
print("R1: ", area, "R2: ", actual_area, "R3: ", 15)
```

Draw a memory diagram to show the contents of memory after the above rectangle area program is run.

(12 points) Complete the following program. You may assume that no trip lasts for 24 hours or more. You may also assume that the parameters are all correct and reasonable (i.e., that miles\_end is greater than or equal to miles\_start).

```
"""Computes a car's average speed over the length of a trip.
```

```
    miles_start will be used for odometer reading at the start of the trip
```

```
    miles_end will be used for odometer reading at the end of the trip
```

```
    hrs_start will store hours on the (24 hour) clock at the start
```

```
    mins_start will store minutes on the clock at the start
```

```
    hrs_end will store hours on the (24 hour) clock at the end
```

```
    mins_end will be used for minutes on the clock at the end
```

```
    Your output should be the average speed in miles per hour over the length of the trip.
```

```
"""
```

(10 points) Complete the following table based on the average\_speed

Program above. (You may assume that the program works properly, even if you were unable to answer the previous question.)

miles_start	miles_end	hrs_start	mins_start	hrs_end	mins_end	return
15000	15030	14	15	14	45	
15000	15030	14	45	15		60.0
80100	80175		0	3	0	75.0
80005	80015	1	30	2	0	
60000	60010	7		7	30	40.0