

MEDGAR EVERS COLLEGE OF CUNY, CS350: PROGRAMMING LANGUAGES PARADIGMS, FALL 2019, PRE-TEST

NAME: _____

1. What is the value of each of the following Boolean expressions? Assume that the value of *Age* is 10 and the value of *Limit* is 21

- | | | | |
|--------------------------------------|-------|---------------------------------|-------|
| a) <code>Age < 13</code> | _____ | d) <code>Age != 10</code> | _____ |
| b) <code>Limit <= Age</code> | _____ | e) <code>Limit <= 18</code> | _____ |
| c) <code>(Age+5) == (Limit-6)</code> | _____ | f) <code>Age <= Limit</code> | _____ |

2. You have been given the task of writing a program that calculates the letter grades of a group of 30 students. The letter grade is obtained from the students final grade, using the following table:

Final Grade	Letter Grade
97 - 100	A+
93 - 96.9	A
90 - 92.9	A-
87.1 - 89.9	B+
83 - 87	B
80 - 82.9	B-
77 - 77.9	C+
70 - 76.9	C
67.1 - 69.9	D+
63 - 67	D
60 - 62.9	D-
0 - 59.9	F

Which control structure would you use to implement the rules on the table?

- a) Sequence b) Selection b) Iteration

Which control structure would you use to repeat the calculation for the 30 students?

- a) Sequence b) Selection b) Iteration

3. Write a program in any language of your choice to ask the user how many pounds his/her suitcase weights. Then, depending on the value entered by the user, the program should print one of the following two messages:

- *There is a \$30 charge for luggage that heavy* ← if the weight is greater than 50
- *Thank you for your business* ← otherwise

4. The sum of the lengths of any two sides of a triangle is greater than the length of the third side. Assume the variables **side1**, **side2**, and **side3** have been declared and initialized in any language of your choice. Write code to determine whether the values held by the variables can form the sides of a triangle.

5. The following code is written in Python. What is the output of the code? In other words, what would you see on screen when you run it?

```
drinks = ["water", "orange juice", "tea", "coffee", "milk"]
for d in drinks:
    print("I like to drink", d)
```

6. Write a for loop that will print the song on the left, using the Python list and function given on the right.

*You put your right hand in,
You put your right hand out,
You put your right hand in,
And you shake it all about,
You do the hokey pokey
and you turn yourself around
That's what it's all about.*

*You put your left hand in,
You put your left hand out,
You put your left hand in,
And you shake it all about,
You do the hokey pokey
and you turn yourself around
That's what it's all about.*

*You put your right foot in,
You put your right foot out,
You put your right foot in,
And you shake it all about,
You do the hokey pokey
and you turn yourself around
That's what it's all about.*

```
def Chorus(p1):  
  
    print("You put your", p1, "in")  
  
    print("You put your", p1, "out")  
  
    print("You put your", p1, "in")  
  
    print("And you shake it all about,")  
  
    print("You do the hokey pokey")  
  
    print("and you turn yourself around")  
  
    print("That's what it's all about.")  
  
fingers = ["right hand", "left hand", "right foot"]
```

7. The function `weekpay` below is written in Javascript. Re-write the function so that it uses a conditional ternary operator. You can re-write it in any language of your choice as long as you use a conditional ternary operator.

```
function weekpay (hourlysalary, hours) {  
    if (hours <=40)  
        return hourlysalary * hours;  
    else  
        return (hourlysalary * 40) + ((hours - 40) * (hourlysalary * 1.5));  
}
```

8. The following code is written in Javascript. What would be the output of the code? Give the exact output that would be printed to the screen (console):

```
var cars = ["Porsche", "Volvo", "BMW", "Lexus", "Tesla"];  
var cars2 = cars;  
cars2[0] = "Mercedes";  
console.log(cars);  
console.log(cars2);
```

9. The following code is written in Python. What would be the output of the code? Give the exact output that would be printed to the screen when you run it:

```
foo = [x**2 for x in range(12) if x%2==0]  
print (foo)
```

10. The following code is written in Python. What would be the output of the code? Give the exact output that would be printed to the screen:

```
foo = []  
for x in range(30):  
    if x%2 > 0:  
        if x%3 == 0:  
            foo.append(x)  
print(foo)
```

11. The following code is written in Python. What would be the output of the code? Give the exact output that would be printed to the screen:

```
ingredients = ["chocolate", "peanut butter", "sugar", "banana", "strawberry", "vanilla", "honey"]
for flavor in ingredients[1:4]:
    print(flavor)
```

12. Convert the code from question 11 to make use of *list comprehension*. You can write it in any language of your choice as long as you use *list comprehension*.

13. The following code is written in Python. Write code to display the 2016 movies and their actors from the following dictionary:

```
movies = {
    "2018, Bohemian Rhapsody": ["Rami Malek", "Ben Hardy", "Mike Myers", "Lucy Bynton"],
    "2017, Get Out": ["Daniel Kaluuya", "Allison Williams", "Catherine Keener"],
    "2017 Logan": ["Hugh Jackman", "Boyd Holbrook", "Patrick Stewart"],
    "2018, Black Panther": ["Chadwick Boseman", "Michael B. Jordan", "Lupita Nyong'o"],
    "2016, Doctor Strange": ["Benedict Cumberbatch", "Rachel McAdams", "Ch. Ejiofor"],
    "2016, La La Land": ["Emma Stone", "Ryan Gosling", "John Legend"]
}
```

This is what your code should display when it runs:

```
2016, Doctor Strange ['Benedict Cumberbatch', 'Rachel McAdams', 'Ch. Ejiofor']
2016, La La Land ['Emma Stone', 'Ryan Gosling', 'John Legend']
```

14. A list of students and their grades has been declared in Python below. Complete the code so that it prints the names of the students with a gpa of 2.85 and higher. If you prefer, you can do it in any language of your choice (you would have to re-create the list)

```
students = [{"name": "Alex", "gpa": 3.2}, {"name": "Karl", "gpa": 2.85},
            {"name": "Lulu", "gpa": 3.6}, {"name": "Andrea", "gpa": 1.4},
            {"name": "Malika", "gpa": 3.3}, {"name": "Mike", "gpa": 1.7},
            {"name": "Peter", "gpa": 2.4}, {"name": "Noel", "gpa": 1.8},
            {"name": "Mon", "gpa": 1.4}, {"name": "Alice", "gpa": 3.8},
            {"name": "Ben", "gpa": 2.9}, {"name": "Saira", "gpa": 1.2}]
```