Questions 1-10 are multiple choice (4 points each).

Question 1. Which of the following is (are) true?

1. \( \text{type}([\text{'word'}, 5]) == \text{type}({\text{'word'}:5}) \)
2. \( \text{type}([\text{'word'}, 5]) == \text{type}([\text{'word'}, 5.0]) \)
3. \( \text{type}([\text{'word'}, 5]) == \text{type}([]) \)

a. 1 only  
b. 1 and 2 only  
c. 2 and 3 only  
d. 1, 2 and 3  
e. none of the above

Question 2. What is the output of the following code?

```python
from turtle import *

def line(shelly, lineLength, penColor):
    shelly.color(penColor)
    shelly.fd(lineLength)
    exitonclick()

t = Turtle()
length = 200
line(t, length, 'blue')
```

a. Name error: global name Turtle not defined  
b. Type error: string literal is not a valid parameter  
c. Import error: '*' is not an attribute of class Turtle  
d. a blue line of length 200  
e. none of the above

Question 3. What is the output of the following code?

```python
weather = 'sleet'
if weather == 'sleet':
    print('brrr!')
if weather == 'snow':
    print('boots')
else:
    print('ahhh!')
```

a. brrr!  
b. brrr! ahhh!  
c. Syntax error: duplicate 'if'  
d. Syntax error: 'else' without 'elif'  
e. none of the above
Question 4. What is the output of the following code?

```python
init = 2
index = 1
while index <= 1:
    init += 2
    index += 1
print(init)
```

a. 2  
b. 4  
c. SyntaxError: invalid syntax  
d. Type error: unsupported operand type(s)  
e. none of the above

Question 5. What is the output of the following code?

```python
val0 = True and False
val1 = True or False
val2 = not True

if val0 and val1:
    print('val0 and val1')
if val0 or val1:
    print('val0 or val1')
if not val2:
    print('not val2')
```

a. val0 and val1
   not val2  
b. val0 or val1  
c. val0 or val1
   not val2  
d. val0 and val1
   val0 or val1
   not val2  
e. none of the above

Question 6. What is the output of the following code?

```python
def biggest(x, y):
    if x > y:
        return x
    elif y > x:
        return y
    else:
        return '=='

print(biggest(3, 3))
```

a. 3  
b. 3, 3  
c. ==  
d. SyntaxError: mismatched return values  
e. none of the above
Question 7. What is the output of the following code?

def scopeTest(a, b):
    c = a + ' ' + b

p0 = 'Holy'
p1 = 'Toledo'
scopeTest(p0, p1)
print(c)

a. ab
b. a b
c. HolyToledo
d. Holy Toledo
e. none of the above

Question 8. What is the output of the following code?

def reps(string, iterations):
    rtnString = string
    while True:
        if iterations <= 0:
            rtnString += string
            return rtnString
        iterations -= 1

repsOutput = reps("a", 2)
print(repsOutput)

a. NameError: name 'reps' is not defined
b. the empty string
c. a
d. aa
e. none of the above

Question 9. What is the output of the following code?

num = 8
diff = 2
target = 1
while num > target:
    num = num - diff
print(num)

a. 0
b. 1
c. 2
d. The while loop never terminates
e. none of the above

Question 10. What is the output of the following code?

def addTest(p0, p1):
    return p0 + p1
print(addTest(1, 'one'))

a. 1one
b. 2
c. two
d. TypeError: unsupported operand type(s) for +: 'int' and 'str'
e. none of the above
Questions 11-13 are programming problems (20 points each).

Question 11.

Write a function named `tris()` that draws a specified number of equilateral triangles. The function `tris()` takes five parameters:

1. a turtle
2. an integer, `num`, that is the number of triangle to draw
3. an integer, `size`, that is the length of a side of a triangle
4. an integer, `x`, that is the distance on the x axis between corresponding points of successive triangles
5. an integer, `y`, that is the distance on the y axis between corresponding points of successive triangles

You may assume that the turtle is intially pointing to the right.

For example, if the function `tris()` is called by the following code, the drawing below would be correct output:

```python
turt = Turtle()
tris(turt, 100, 5, 30, 20)
exitonclick()
```

Hint: you may write a helper function that draws a single triangle.

Question 12.

Write a function named `compare()` that tests which of two parameters is greater. The function `compare()` takes two parameters, `a` and `b`.

The function `compare()` should return one of three strings: '<' if `a` is less than `b`, '>' if `a` is greater than `b` and '==' if `a` is equal to `b`. For example, the following would be correct output:

```python
>>> comparison = compare(7, 7.0)
>>> print(comparison)
==
```

Question 13.

Write a function named `goodLuck()`. The function `goodLuck()` should ask the user's name, then ask what course the user is taking, and then print a message, the course, and the user's name, with a comma between the course and the user's name. The function `goodLuck()` takes one parameter: a string named `message`.

For example, the following would be correct input and output:

```python
goodLuck('Ace')
What is your name? Rachel
What course are you taking? cs100
Ace cs100, Rachel
```