BGMT404 Midterm Exam   Section 0101   Spring 2016

Name: _____   **UID:** _____

You have 1 hour and 15 minutes to complete this exam (it should take much less time than that).
* ~~You may use 1 page (one side, A4 paper) of handwritten notes~~
* You may not use any computers.
* Also, you may not communicate with any other person during this exam, (except the professor or the TA).
* Make sure you have answered all of the questions in the exam. It isn't over until it says "END EXAM".
* Do not forget to write your name and UID.

As strategies for completing the questions on this exam, please keep in mind the following:
* If you find a question ambiguous, please explain your confusion.
* You are more likely to get partial credit for a wrong answer if you show your work.
* However, be careful not to get carried away and run over the time limit. In other words, plan ahead.
* It is a good idea to work on questions with smaller points first (they are easier) and work harder questions later.

1. Please put your answer in the parenthesis. (20 points)

1.1(F) True or False: the following is a legal variable name: A_good_grade_is_A+

1.2(9/4) The output after executing the following 2 statements: (1) x = "9/4" (2) print x

1.3(15) The value of the following expression: 16 – 3*7 // 4 % 2

1.4(F) True or False: the value of the expression: 5*3 > 10 and 4+6==11

1.5(llo) The output after executing the following statement: s= 'helloworld' print s[2:5]

1.6(11) The output after executing the following statement: print max(range(2,7)) + len(range(5))

1.7 The output after executing the following statements:
myDict = {'id': '1001', 'name': 'alice', 'age': 20}
for k in myDict.keys():
        print myDict[k]

Output:

1001
alice
20

1.8 Is there any errors here? If so, please specify what causes errors.
s = (12,)   s += (12,15)   s[1] = 13
Error. The tuple is immutable.

1.9(   ) The output of the following statement: lambda a=3, b=4: print a+b
Error.

1.10 The output after executing the following statements:
lst = [1, 3, 5, 7, 8, 10]
for k in range(1,4):
        print lst[k]

Output:
3
5
7

2. Please read the following program and answer questions. (15 points)

```
nums = range(10)
i = 0
while i < len(nums):
        print nums[i]    # (S1)
        i += 1           # (S2)
print i                  # (S3)
```

(a) how many times the statement S1 was executed?
10

(b) what is the output for statement S3?
10

3. Please read the following program and answer questions. (20 points)

```
nums = range(10, 20)
for i in range(10):
        if i%2 == 0:
                print nums[i]
        else:
                if i == 5:
                        break
```

```
        else:
            print nums[i]*2
```

Please write down the output of this program:
10
22
12
26
14

4. Please read the following program and answer questions. (20 points)

```
stars = 5
width = stars*2
for i in range(5):
    s = (i+1)* '*'
    s += (stars - (i + 1))*2* '-'
    s += (i+1)* '*'
    print s
```

Please write down the output of this program:

****--****
****

5. Please read the following program and answer questions. (25 points)

```
mydict = {"cat":12, "dog":6, "elephant":23, "bear":20, "tiger":23, , "monkey":12}
anotherdict = {}
for i in mydict:
    v = mydict[i]
    if v in anotherdict:
        lst = anotherdict[v]
        lst = lst.append(i)
    else:    anotherdict[v] = lst
        lst = [i]
        anotherdict[v] = lst

for k, v in anotherdict.items():
    print k, ":", v
```

Please write down the output of this program:

20 : ['bear']
12 : ['monkey', 'cat']
6 : ['dog']
23 : ['tiger', 'elephant']

 (Bonus question: optional) (**20 points**)

END EXAM