CSE307/CSE526 – Midterm Exam 1

20-Sep-2018 **Total points: 100**

Name: _____ **Student ID # _____**

Instructions: Read the questions carefully before attempting to write the answer. Write the answers in the space provided below each question. Use of pencil is encouraged, so that you can erase and overwrite. Make sure that your handwriting is legible. Rough work sheet is provided at the end of answer sheet – which is to be used only for rough work, not for writing answers.

1. Briefly draw phases of compilation along with the forms in which information is passed between phases. (10 pts)

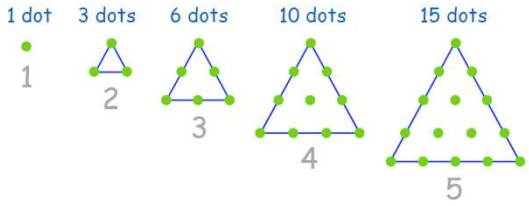
2. Provide a comparison of interpreter and compiler using the table below. (8 pts)

Compiler	Interpreter

3. Compare Java and Python using the table below. (8 pts)

Java	Python

4. The **triangle numbers series** is generated by creating triangles of progressively larger size:



Write a function with the following definition to return a list of n elements in a triangle number series where n is the number of terms in a series. E.g. triangleSeries(6) should return a list [1, 3, 6, 10, 15, 21]. (20 pts)

def triangleSeries(terms):

5. Write a password generator in Python where the password is 8 characters long. Be creative with how you generate passwords - strong passwords have a mix of lowercase letters, uppercase letters, numbers, and symbols. The passwords should be random, generating a new password every time the user asks for a new password. Hint: gYou can randomly select an uppercase character using a function random.choice ("ABCDEFGHIJKLMNOPQRSTUVWXYZ") (20 pts)

6. What is the output of the following? (2 pts)

```
x = ['ab', 'cd']
for i in x:
   x.append(i.upper())
print(x)
```

Answer: _____

7. What is the output of the following? (2 pts)

```
i = 1
while True:
   if i%2 == 0:
   break
print(i)
i += 2
```

Answer: _____

8. What is the output when following statement is executed? (2 pts)

```
>>>"abcd"[2:]
```

Answer: _____

9. What is the output when following code is executed? (2 pts)

```
>>> str1 = 'hello'
>>> str2 = ','
>>> str3 = 'world'
>>> str1[-1:]
```

Answer: _____

10. When executed what would the following script print? (4 pts)

```
def func1():
   print("*")
   func2()
   print("@")
def func2():
   print("**")
   func3()
   print("@@")
def func3():
   print("$$")
def main():
   func2()
   func1()

main()
```

Answer:

11. Consider the following class Guitar. Write output of each of the print statements following the class. (15 pts)

```
class Guitar:
    # Construct a guitar object
    def __init__(self, id, numStrings = 12, price = 1000):
        self.id = id
        self.numStrings = 12
        self.price = price
```

```
    def getId(self):
        return self.id
    def getNumStrings(self):
        return self.numStrings
    def updatePrice(self, price):
        self.price = price
    def getPrice(self):
       return self.price
    def __str__(self):
        return "Guitar: numStrings = " + str(self.numStrings) + " price = " +
str(self.price) + " id = " + str(self.id)

guitarA = Guitar(123)
print(guitarA)

guitarB = Guitar(234, 8)
print(guitarB)

guitarC = Guitar(345, 8, 1500)
print(guitarC)

guitarD = Guitar(456, price = 2000)
print(guitarD)

guitarA.updatePrice(2500)
print(guitarA)
```

a)

b)

c)

d)

e)

12. How do you define algorithm? Given three numbers, write an algorithm to to calculate Least Common Multiple of the two integers a and b. (2 + 5 pts)

Rough Work

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