COURSE NAME: PROGRAMMING LANGUAGES FOR BIOINFORMATICS      MAX.MARKS:35

COURSE CODE: 15B11BI421      MAX.TIME: 2 HRS

**Note: All questions are compulsory. Carrying of mobile phones during examinations will be treated as a case of unfair means. Questions 3 and 4 carry 10 Marks, the rest are for 5 Marks.**

1. For the variable s="abcde"      **(5 marks)**
   (a) What is the value of s[1]?
   (b) What is the value of s[-1]?
   (c) What is the value of s[::2]?
   (d) What is the value of s[-3]?
   (e) What is the value of s[0]?

2. Write a python function **swapped_half(string)** that takes a string input **string** and returns a string whose first half is **string**'s second half and whose second half is **string**'s first half. If **len(string)** is odd, the first half of the input string should have one fewer character than the second half, and thus the second half of the output string will be one character shorter in such cases.      **(5 Marks)**

3. What gets printed?      **(10 Marks)**

```
import re
re_wordsep = re.compile(r"[\W']+")
re_capwords = re.compile(r"[A-Z][a-z]+")
re_float = re.compile(r"\d+(\.|\.\d+)?")
re_int = re.compile(r"\d+")

s1 = "There are 10 kinds of people in a Binary world"
s2 = "Noone expects the Spanish Inquisition"
s3 = "3 calling birds 2 french hens"
s4 = "a thing or 2"

m = re_int.match(s3)
if m:
    print (m.group())
m = re_int.match(s4)
if m:
    print (m.group())
m=re_int.search(s3)
if m:
    print (m.group())
m=re_int.search(s4)
if m:
    print (m.group())
if re_int.match(s1):
    print ("s1 contains integers")

words = re_wordsep.split(s2)
print (words)
print (re_capwords.findall(s1))

for x in re_capwords.finditer(s1):
    print (x.group())
```

4. Lord Tyrion lannister (Imp) is faced with a unique predicament in the absence of Queen Daenerys Stormborn Targaryen. As the coinmaster, he needs to devise a way to fill the treasury of Meereen and bring law and order to Meereen. Since he is clever, he is commissioning you to write a python or perl script (to be placed at every entrance), as he intends to automate the tax collection without his supervision. Before executing the script he demands that he sees the psuedocode.

**Every day there are 100 merchants coming to Meereen. A Tyroshi male merchant has to be charged 10 gold dragons and 20 copper pennies each day. A Tyroshi female merchant pays 5 gold dragons and 10 silver stags for each day. A Dornish male or female merchant pays 20 gold dragons and 10 copper pennies for each day. A Dothraki male has to be made captive. A female Dothraki will be under the care of Missandei. Any Sons of Harpy male or female who sells a slave or recruiting slaves will be made captive. Also, he/she will be fined 100 gold dragons and 100 silver stags. After the payment, they will be fed to Viserion and Rhaegal.**
*Remember a Lannister always pays his debts, only when the job is completely done.*  **(10 Marks)**

5. (i) Which of these is not a core data type?  **(1 Mark)**
   (a) Lists
   (b) Dictionary
   (c) Tuples
   (d) Class

   (ii) What does the function `re.match` do?  **(1 Mark)**
   (a) matches a pattern at the start of the string
   (b) matches a pattern at any position in the string
   (c) such a function does not exist
   (d) Darkarys!

   (iii) What is the output of the following?  **(1 Mark)**
   ```
   sentence = 'we are humans'
   matched = re.match (r'(.*) (.*?) (.*)', sentence)
   print (matched.groups())
   ```
   (a) ('we', 'are', 'humans')
   (b) (we, are, humans)
   (c) ('we', 'humans')
   (d) 'we are humans'

   (iv) What is the output of the following?  **(1 Mark)**
   ```
   print ('xyyxyyxyxyxxy'.replace('xy', '12', 0))
   ```
   (a) xyyxyyxyxyxxy
   (b) 12y12y1212x12
   (c) 12yxyyxyxyxxy
   (d) xyyxyyxyxyx12

   (v) Which of the following statements create a dictionary?  **(1 Mark)**
   (a) d={ }
   (b) d={"johnny":40, "papa":45}
   (c) d={40:"johnny", 45:"papa"}
   (d) d=(40:"johnny", 45:"papa")