The Open University of Sri Lanka
Faculty of Engineering Technology
Department of Electrical and Computer Engineering

Study Programme	: Bachelor of Software Engineering
Name of the Examination	: Final Examination
Course Code and Title	**: EEI3372 Programming in Python**
Academic Year	: 2021/22
Date	: 24th November 2022
Time	: 9.30 -12.30
Duration	: **3 Hours**

General Instructions

1. Read all instructions carefully before answering the questions.
2. This question paper consists of 06 questions.
3. **Answer all questions.**
4. Answers should be in clear handwriting.
5. Do not use red color pen.

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1. Write short answers on the following:
   a. Briefly explain the differences between a mutable and an immutable with suitable examples. [5 marks]
   b. Briefly explain the following:
      i. Debugging ii. Source Code iii. Algorithm [6 marks]
   c. Write a simple snippet for the following questions
      Consider the lists, A = [77,9,"u",3,5] B = [1,"y","s"]
      (i) Add numbers 12 and the letter "u" to the list A. [3 marks]
      (ii) Remove number 9 from the list A. [3 marks]
      (iii) Remove all the items from list B. [3 marks]

2. GAME Warrior company is designing a number guessing game as their first ever game launch.

Write Python code for the following:

- Initialise a variable with a hidden value 6.
- Ask the user to enter a guess (number between 1- 30).
- Loop while the guess is NOT the hidden number.
- Within the loop
  - State an error message when the guess is not correct and ask the user to enter the next guess between 1- 30.
- If the guess is correct, the loop has to stop and let the user know the guess is correct.

[20 marks]

3. Determine the output of the following python expressions/code segments.

a. 3*4+(24/8)

b.
```
y = 'openuni'
for i in range(len(y)):
    print(i)
```

c.
```
def open(y):
    return y * y * y
y = open(4)
print y
```

d.
```
>>>test = "BSESoftware"
>>>test.find("f")
```

e.
```
nums = set([1,1,2,3,3,3,4,4])
print(len(nums))
```

[4x5=20 marks]

4.

(a) List three types of arguments used in Python. [3 marks]

(b) Write a Python Program to produce the sample output given below according to the user input.

(i) A user should be able to calculate the volume of a cube or cuboid when entering information such as length and height. **(Length = l, Width = w and Height = h).**

(ii) The first user should enter the shape, which needs to calculate volume (cube, cuboid).

(iii) The according to the shape program should take the input from the user, according to the below table.

Cube	Length
Cuboid	Length, Width and Height

(iv) ***Cube volume = length* length *length***

Cuboid volume = length * width * height

(v) Write a function called ***cal_cube*** to calculate the volume of the cube.

(vi) Write a function called ***cal_cuboid*** to calculate the volume of the cuboid.

(vii) Finally, the output should be displayed in the given format below using the ***display_info*** function.

Sample Output

--- Sample Output 1 ---
Shape: Cube
Length: 4cm
Volume: 64cm^2

--- Sample Output 2 ---
Shape: Cuboid
Length: 4cm
Width: 5cm
Height:2cm
Volume: 40m^2

[17marks]

- Assume that the user will not enter any invalid data.
- Use appropriate names when naming identifiers.
- Assume all the values are in centimetres.

5.

(a) Explain the multiple inheritance in Pyhton using an example. [2 marks]

(b) Figure out the output of the following Python code and explain the reason for getting the output. [6 marks]

```
List = ['a', 0, 2]
for entry in List:
    try:
        print("The entry is", entry)
        r = 1/int(entry)
        break
    except:
        print("Oops!", sys.exc_info()[0], "occurred.")
        print("Next entry.")
        print()
print("The reciprocal of", entry, "is", r)
```

(c) Write a simple python snippet to display all the numbers from 20 – 50 except 23,47 and 49. [3 marks]

(d) What is the difference between semantic errors and syntax errors in Python. Give an example for both errors. [6 marks]

(e) Briefly explain what Alpha testing and Beta testing are in Software testing. [3 marks]

END