The Open University of Sri Lanka

Faculty of Engineering Technology

Department of Electrical and Computer Engineering

Study Programme	: Bachelor of Technology Honours in Engineering
Name of the Examination	: Final Examination
Course Code and Title	**: EEI3372/EEX3372 Programming in Python**
Academic Year	: 2020/21
Date	: 16th January 2022
Time	: 2.00 – 5.00
Duration	**: 3 Hours**

General Instructions

1. Read all instructions carefully before answering the questions.

2. This question paper consists of **PART - A** and **PART - B** in Nine (9) pages.

3. **PART - A** is compulsory. You need to answer ALL questions in **PART - A**.
   PART – A carries 40 marks.

3. Answer any Four (4) questions in **PART- B**. All questions carry equal marks.

4. Answer for each question should commence from a new page.

5. This is a **Closed Book Test (CBT).**

6. Answers should be in clear hand writing.

7. Do not use red color pen.

     a. Add number 11 and 13 to the above list A. [1 mark]
     b. Remove number 6 form the set A. [1 mark]
     c. Replace "i" in list B with "m". [1 mark]
     d. Replace items in list A with items in list C. [1 mark]
     e. Remove all the items from list B. [1 mark]

3. Indexing is an important concept when accessing tuples.

B = ("OUSL", [20, 30, 40], (2, 4, 6))

     a. Write a snippet to access the value 4 in tuple B [2 marks].
     b. Write a snippet using the Range function to print values from 6 – 12. [2marks]

4. *Lonco College* conducts an exam which consists of three subjects before accepting students to their college. In order to get into college students must pass all three subjects with different passing scores.

Subject	Passing mark
English	50
Mathematics	40
IQ	45

Students must get more than the passing mark for all three subjects. Write a small Python program when the marks are entered if the student is eligible, "student is eligible" should be displayed if not, "Student is not eligible" message should be displayed. [5 marks]

Question 02

1. What is string slicing in Python? Explain with an example [3 marks]
2. Write a small python program for the below scenario
     a. An airline decides the weight of luggage a passenger can carry based on their ticket. If it is a first-class passenger, that passenger is allowed to carry 25 kg of luggage, if it is a business class passenger 28 kg of luggage and for economy class 15 kg of luggage.
          i. The user should be able to enter the ticket class, ticket number and the luggage weight of the passenger.
          ii. Assume that aircraft can carry only ten passengers at a time, the user should be able to enter details of all the passengers at once.
          iii. Finally the program should display the details of passengers who have exceeded the limit.

[7 marks]

3. Write a simple python snippet to display all the numbers from 12 -24, except 13,17, and 23. [3 marks]
4. What is the difference between .py and .pyc files in Python? [2 marks]

Question 3

1. List two advantages of using functions in Python code. [2 marks]
2. Write a Python Program to get the below output.
    a. To get the below output a user should be able to enter the Account holder's name, Account holders' number, Account type (Current account/Savings account), account balance and Current Interest rate.
    b. Once the details are entered using **Cal_Interest()** function, the interest rate should be calculated.
    c. Then using **Display_details()** function, all the details should be displayed according to the given output.

```
-- Account Details --

Account Holder Name: K D Rathnayaake
Account Number: 335745032507
Account Type: Savings
Current interest Rate:12%

Account Balance: Rs.35678.24
Interest Earned: Rs 234.54
```

[8 marks]

- Assume that the user will not enter any invalid data.
- Use appropriate names when naming identifiers
3. What is Lambda function in Python? Write a key characteristic of Lambda function. Give an example. [3 marks]
4. Name two Math functions available in Python. [2 marks].

Question 4

1. In Python, two types of attributes are mainly used. Name those two types of attributes and state the ownership of those attributes. [2 marks]
2. Explain the functionality of the below method. [1 marks]
    a. _init_
3. **Care giver** is a private clinic that handles more than 50 patients a day and they are planning to have a loyalty program for their patients. There are three tiers in the loyalty program.

Program tier	Number of points	Discount
Gold	100	For General consultation 10%
		For Specialist consultation 12%
Silver	50	For General consultation 8%
		For Specialist consultation 10%
Bronze	30	For General consultation 5%

		For Specialist consultation 7%

a. For a general consultation usually, it costs Rs.1500 and for a specialist consultation it costs Rs.2500.

b. When the receptionist enters the patient name, whether the patient is having general or specialist consultation and the number of points, the program should calculate the discount and display the details related to the consultation.

c. For each consultation a patient will earn 3 points

Sample output If the number of points is 52,

> *Name of the patient: Kamal Perera*
>
> *Type of consultation: Special Consultation*
>
> *Consultation fee: Rs 2500*
>
> *Consultation fee after the discount: Rs 2250*
>
> *Final point balance:55*
>
> *Final point balance:55*

Assume that this program is only used for loyalty program   . [12 marks]

Question 5

1. Explain the difference between overriding and overloading.   [4 marks]
2. Give two factors/occasions where a run time error can occur in a program.   [2 marks]
3. Figure out the three outputs of the below python code. (Type of error needs to be properly mentioned in the output) [5 marks]

```
import sys

A = ['L', 0, 6]

for entry1 in A:
    try:
        print("The entry is", entry1)
        c = 1/int(entry)
        break
    except:
        print("Error!", sys.exc_info()[0], "occurred.")
        print("Next entry.")
```

print()
print("The corresponding value of", entry1, "is", c)

4. To eliminate the errors, update the code with suitable new values. [2 marks]
5. Briefly explain what Alpha testing is in Software testing. [2 marks]