Unique Paper Code	**62347502**
Name of Course	**B.A. Programme**
Name of Paper	**Programming with Python (LOCF)**
Semester	**V**
Year of Admission:	**2019**

Duration: **3 hours** Maximum Marks: **75**

Attempt any **four** questions.
All questions carry equal marks.

1. Design a class named `Account` that contains:

   - Data fields `custid, balance` and `annualInterestRate`
   - A constructor that creates an account with the specified `id` (default 0), initial `balance` (default 100), and `annualInterestRate` (default 0).
   - A method named `withdraw` that withdraws a specified amount from the account.
   - A method named `deposit` that deposits a specified amount to the account.

   Create an Account object `acc1` with a customer id of 1122, a balance of Rs. 20,000, and an annual interest rate of 4.5%. Use the `withdraw` method to withdraw Rs. 2,500, and use the `deposit` method to deposit Rs.3,000. Print the balance of the object `acc1` after both the transactions.

   Write the output of the following code with explanation:

```
i= 0
for x in range (1,3):
        j=0
        for y in range(-2,0):
                j = j+y
                i = i+j
print (i)
```

   Write a program to input the `password` from the user. If the user enters the correct password i.e., "Language" then display the message, "Welcome to Python programming". Only three attempts are allowed to enter the right password.

2. Write a program to calculate exponent of two numbers `x` and `y` as x^y using recursive function.

Write Python statement(s) to do the following:

- Create a list with 100 Boolean False values.
- Assign the value 5.5 to the last element in the list.
- Display the sum of the first two elements in a list.
- Find the minimum element in the list.

Write a Python program to calculate binary equivalent of a decimal number and displays the result.

3. Write a Python program to arrange the elements of a given list in ascending order without using any in-built function.

Write a Python program to read a character until a * is encountered. Also, count and print the number of uppercase, lowercase and numbers entered by the user.

Write a Python program that accepts a string from user and displays the same string after removing vowels from it.

4. Given a list of integers and a value (input by the user), write a Python program to print index at which this value exists. If the value exists at multiple locations in the list, then print all the indices. Also, count the number of times that value is repeated in the list (**without** using built-in functions).

Consider the following two sets:

```
setx = set(["apple","banana", "orange", "pineapple"])
sety = set(["pineapple","banana", "guava", "mango"])
```

Write the Python statements for each of the following operations:

- Adding "pear" to the set `setx`.
- Compute union of `setx` and `sety`.
- Compute intersection of `setx` and `sety`.
- Remove "orange" from `setx`.

Write a Python function called `mid` that takes a list as argument and returns a new list that contains all except the first and last elements.

For example: `mid([1, 2, 3, 4])` should return [2, 3].

5. When `a=15, b=12`, write an expression using bitwise operator in Python which will produce the following output:

- Output is 12
- Output is 15
- Output is 3
- When a=15 output is 1
- When b=12 output is 96

Write a Python program to print the keys of the dictionary and their values in an ascending order.

Write the following numeric expression in Python and evaluate when values of variables P and Q is 4 and 2 respectively.

$$\frac{2+8P}{2} - \frac{(P-Q)(P+Q)}{2} + 4 * \frac{(P+Q)}{2}$$

6. Differentiate between list and tuple with the help of suitable example? Also, write down the Python statement(s) to create a tuple from a list and to create a list from a tuple?

Write a Python program to calculate BMI and its interpretation (from the table given below), where the user inputs weight in pounds and height in inches.

(1 pound = 0.45359237 kilograms; 1 inch = 0.0254 meters;

BMI= weight in kilograms/height in meters^2)

BMI Interpretation

Below 18.5	Underweight
18.5 – 24.9	Normal
25.0 -29.9	Overweight
Above 30.0	Obese

Given a list `lst=[30,1,2,1,0],` write Python method/statement to modify `lst` as given below:

- Add 40 at the end of list
- Add 43 at index 1
- Remove element present at index 2
- Remove the last element
- Reverse the list
- Arrange the elements in ascending order