Question Bank for ETE(Programming In Python)

1. Identify how python language is more simple other than Java and C. Give proper example.
2. Explain the working of random.seed() function.
3. (a) Apply a comprehensive explanation of pickle module in Python and list out advantages and
   limitations of using pickle to write binary files in Python.
   (b) Explain what is range() function and how it is used in lists?
4. List the operators that python supports. Explain the relational and logical operators along with their precedence while evaluating an expression.
5. (a) Show the value of L after you run the code below?

```
L = ["life", "answer", 42, 0]
for thing in L:
if thing == 0:
L[thing] = "universe"

  elif thing == 42:

 L[1] = "everything"
```

   (b) Show the value of L3 after you execute all the operations in the code below?

```
L1 = ['re']
L2 = ['mi']
L3 = ['do']
L4 = L1 + L2
L3.extend(L4)
L3.sort()
del(L3[0])
L3.append(['fa','la'])
```

6. Categorize and discuss the types of Polymorphism in details with proper example.
7. (a) Analyze a Numpy array filled with all zeros.
   (b) Analyze reverse a Numpy array.
8. Assuming the instructions given below, write a simple program using a class()

- A base class Person and a derived class Student with Person as its base class.
- Add two methods **setname()** (which takes the parameter self and name)and **getname()** which prints the name in the base class.
- Add two methods in the derived class: **setage()** (which takes the parameters self and age) which sets the age and **getage()** which prints the age.
- Create an instance of **Student** and name it as **s1**.
- Take **name** and **age** as inputs from the console.
- Call the **setname()** and **setage()** on this instance by passing the **name** and **age** parameters.
- Call the **getname()** and **getage()** on this class, which prints the passed parameters

9. Apply a Python program that imports the abs() function using the built-ins module, displays the documentation of the abs() function and finds the absolute value of -155.

10. Develop a python program that asks users to enter their percentage mark for a module of study. The program prints the module grade as either distinction, merit, pass or fail depending on the percentage mark entered.

I. A mark of 70% and above is awarded a distinction.
II. A mark in the range of 60% through to 69% is awarded a merit.
III. A mark in the range of 40% through to 59% is awarded a pass.
IV. Marks less than 40% are awarded a fail

11. (a) Assume fruits = ("apple", "banana", "cherry", "orange", "kiwi", "melon", "mango") write the print statement using a range of indexes to print the third, fourth, and fifth item in the tuple.
    (b) Assume fruits = ("apple", "banana", "cherry") write the python code using negative indexing to print the last item in the tuple.
12. A permutation is simply a name for a reordering. So the permutations of the string 'abc' are 'abc', 'acb', 'bac', 'bca', 'cab', and 'cba'. Note that a sequence is a permutation of itself (the trivial permutation). Take the permutation of the string in the list and write python program for a recursive function (get_permutations) that takes a string and returns a list of all its permutations.
13. Explain different rules about to define an identifier in python. If the age of Ram, Sam, and Khan are input through the keyboard, write a python program to determine the eldest and youngest of the three.
14. Write a Python program to find the exponentiation of a number.
15. Identify the string method used to implement the following.
    I. To count the number of characters in the string.
    II. To change the first character of the string in capital letter.
16. Define SciPy, Scrapy, Scikit-learn, PyGame, PyTorch, PyBrain and Keras.
17. (a) Show the output of the following Python code?

```
d = {"john":40, "peter":45}
d["john"]
```

    b) Is tuple comparison possible? Explain how with example.

18. Assume the given instructions while writing the program
    - Use the **Module_Imp3** which contains functions that can be imported.
    - Use from Module_Imp3 import *
    - Take an integer as **input** from user and store it in the variable **side.**
    - Call the function calculatearea(side,side)
    - Call the function calculatediameter(side)
    - Call the function pivalue()
    - print shapes[1:2]

19. Analyze a Python class that has two methods: get_String and print_String , get_String accept a string from the user and print_String prints the string in upper case.
20. List below are the following conditions to write a program to display only those numbers
    (a) The number must be divisible by five
    (b) If the number is greater than 150, then skip it and move to the next number
    (c) If the number is greater than 500, then stop the loop
    (d) Input: numbers = [12, 75, 150, 180, 145, 525, 50]
    (e) Output:
        75
        145
        150
21. (a) Identify the steps to create a 1D array and 2D array.
    (b) Apply Python programming to compute the row wise counts of all possible values in an array.
22. (a) Compare the differences between a python dictionary and a python set, including the syntax, parameters, and output of each.
    (b) Analyze the "fromkeys" method in python dictionaries, including its syntax, parameters, and output.
    (c) Write a simple program to convert given number into string, char and hexadecimal and complex number.
23. (a) Assume the string "This is my first String". Write a program to print the following: print the string, print the character f using forward indexing, and print the character S using negative/backward indexing.
    (b) Test for two inputs from the user using input() function, one is string str and another one is integer n. Write a program to print the given string str n times. Print the result as shown in the example.
24. Assume the given below instructions to define a base class Car and a derived class Accord.
    - Car class has two methods which sets and gets the method brandname.
    - Accord is a derived class of the base class Car, which has two methods which sets and gets the brandname.
    - Accord also has the model set and get methods.
    - Now create an instance of Accord and set the brandname to the user given input.
    - Set the input model for the same instance.
    - Now print the output by calling the methods getbrandname() and getmodel() on Accord instance
25. Recall and discuss different kind of keywords in python. Write a source code in python to explain bitwise operators available in python programming language.
26. Write a Python program that given number is palindrome or not.
27. Show how to initialize and access the elements of a tuple by giving a suitable example.
28. (a)Define the functions in Matplotlib: (i) title() (ii) xlabel() (iii) ylabel() (iv) legend()
    (b) How can you adjust the axis limits of plots in matplotlib?
    (c) What are the various uses of the axis() function in matplotlib?
29. (a) Show a python program to print multiplication table of a given number.

(b) Explain the syntax to read a string from the right-hand side. Consider str = “Python is a wonderful Language”. Reverse and print the str from the right-hand side.

30. a) Assume three strings to compare. Using else-if compare then and print the longest string.

(b) Assume the string str = “Bangalore”, Iterate it using for loop, and print characters vertically.

31. a) Construct a tuple with the user-given elements and concatenate both the tuples and print the result.

(b) Construct a tuple with the user-given inputs. Write a program using membership operators to check whether the given element is present in the tuple or not. Print the result.

(c) Apply a python program to add an element to a tuple based on the user-given value in a specific index, and print the result as shown in the example. If the index is not in the range print the error message as shown in the example.

32. a) Construct a python program to change Dictionary keys into values and values into keys, and print the result.

(b) Choose an integer sequence from the user. Write a program to print a dictionary from the given sequence. Consider the element in the sequence as a key, and the number of times the element occurs in the sequence as a value. Print the result.

33. a. Identify different methods available in python dictionaries to add, remove, or change elements within a dictionary, including their syntax, parameters, and output.

b. Make Use of the "pop" method present in python dictionaries, including its syntax, parameters and output. Identify how it is differ from the "popitem" method, and when would you use one over the other?

34. Choose the capitalize() method works in python. Take str1 = “ hello how are you” & str2 = “42 is my lucky number”. Demonstrate the output for both strings.

35. Assume the given below instructions to implements the method overriding method:

- Define class Animal
- Use constructor to set the name with a default value = "This Animal"
- Define a method eat with a parameter food with a default value = "Grass"
- Inside the method print (self.name, " eats", food)
- Define a class Mammal, inherit from Animal
- Inside the class, override eat method to print(self.name, " does not eat. It only drinks")
- Define class WingedAnimal, inherit from Animal

- Override eat method to print(self.name," eats anything and everything")
- Define a class called Bat, inherit from WingedAnimal, Mammal
- Define method smell, which prints "This Animal Stinks"
- Define a class called FruitBat, inherit from Mammal, WingedAnimal (Notice the Order)
- rabbit1 = Animal("Rabbit")
- print("Rabbit1 is an instance of Animal")
- rabbit1.eat() # Animal's eat method without food parameter
- rabbit1.eat("Peanuts") # Animal's eat method with food parameter
- print("Cow1 is an instance of Mammal")
- cow1 = Mammal("Cow")
- cow1.eat() # Mammal's eat method
- print("Vulture1 is an instance of WingedAnimal")
- vulture1 = WingedAnimal("Vulture")
- vulture1.eat() # WingedAnimal's eat method
- print("Bat1 is an instance of Bat")
- bat1 = Bat("Bat")
- bat1.eat() # WingedAnimal's eat method
- print("fbat is an instance of FruitBat")
- fbat = FruitBat("Fruitbat")
- fbat.eat() # Mammal's eat method.

36. a) Assume the given instructions below to write the program

i.Take the input values a, b from the user.

ii. Define the function add().

iii. It takes two arguments a and b.

iv. Add a and b and return the result.

v. Call this function by passing the argument values a and b and print the result.

b) Assume the given instructions and write the program to undertand Key arguments

• Define a function simplecalc()

• Takes two parameters a and b simplecalc(a, b)

• Inside the function do all the operations +, -, * on a and b.

• Print the result of all the operations

• set values a = 3 and b = 4.

• Call the method by passing two values as keyword argument one in the regular order and one in the reverse order.

37. Which string method is used to implement the following?

(i) To check whether the given character is a letter or a number.

(ii) To change lower case to upper case letter.

38. Write a user-defined function named Count() that will read the contents of text file named "Report.txt" and count the number of lines which starts with either "I" or "M" and displays the count.

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40. Implement in Python to create your own universal function in NumPy.

41. Devise string slicing in python with syntax. Take an example of string and demonstrate different types of slicing with code.

42. Discuss the use of the following methods with a sample string: lstrip(), rstrip(), strip()

43.Write a Python program to create a lambda function that adds 15 to a given number passed in as an argument, also create a lambda function that multiplies argument x with argument y and prints the result.

44. Using regular expression, write a python program to check that a string contains only a certain set of characters (in this case a-z, A-Z and 0-9).

45. List the three types of conditional statements and explain them.

46. Implement in Python to accessing Data Along Multiple Dimensions Arrays in Python Numpy.

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48. (a) Write the output of the below code?

```
pset_time = 15
sleep_time = 8
print(sleep_time > pset_time)
derive = True
drink = False
both = drink and derive
print(both)
```

(b) Find the value of brunch after you execute all the operations in the code below?

```
L1 = ["bacon", "eggs"]
L2 = ["toast", "jam"]
brunch = L1
L1.append("juice")
brunch.extend(L2)
```

49. Evaluate the following python code and identify the output of each statement

```
a=6
b=7
c=42
print 1, a==6
print 2, a==7
print 3, a==6 and b==7
print 4, a==7 and b==7
print 5, not a==7 and b==7
print 6, a==7 or b==7
print 7, a==7 or b==6
print 8, not(a==7 and b==6)
print 9, not a==7 and b==6
```

50. Discuss the "get" method in python dictionaries, including its syntax, parameters, and output. How does it differ from using square brackets to access a key in a dictionary and when would you use one over the other?