QUESTION BANK FOR

PYTHON PROGRAMMING TECHNIQUES

(TIU-UCA-MJ-T22201)

1. What are the Logical operators available in Python state with example?
2. State with an example, the role of the following operators: i) is ii) in iii)not in iv)<< v)>>
3. Describe if-elif-else structure with an example. (5)
4. Take a age and find he or she is Child or Teenage or adult or Senior Citizen.(5)
5. Take a year and find leap year or not. (5)
6. The marks obtained by a student in 3 different subjects are input through the keyboard. The student gets a division as per the following rules:

   Percentage above or equal to 60-----First division
   Percentage between 50 and 59 ------Second division
   Percentage between 40 and 49 ------Third division
   Percentage less than 40----------Fail

   Write a program to calculate the division obtained by the student.(5)

7. Describe range() function with an example.(3)
8. Write a program to print all odd non prime numbers between 1 to 50.(5)
9. Calculates the sum of digits of a number.
10. Print the following pattern: (5)

    1
    22
    333
    4444 for n=4

11. Write a program to calculate the sum of the following series: (5)
    S= 1/2+2/3+3/4+....+n/(n+1) [n should be user input]
12. Difference between break and continue with example. (5)
13. Define a function which will take principal amount, time in years and rate of interest in percentage as input and calculate the simple interest. All the three arguments have default values – 1000 (principal amount), 5 (time in years) and 10 (rate of interest in percentage). Call the function from main module with all possible ways and calculate the simple interest each time. (5)
14. Define a function which will calculate factorial of a number and call the function from main module with a value taken from user.(5)
15. Define a function which will accept name of a student and a set of sports that he/she likes and this function will display the student name and his/her favorite sports. Use variable length argument in the function parameter so that different student can have different number of favorite sports. (5)

16. What is function? What is the advantage and disadvantage of using function? (2+2+2)
17. Using lambda function to check whether a number is Positive, negative or zero.(3)
18. Using lambda function to check whether the number is even or odd(3)
19. What is the role of return and def keyword with respect to function? (2)
20. Define recursion. Differentiate it with iteration. (2+3)
21. Write a python program to print Fibonacci series using recursion(5)
22. Write a python program to print Factorial using recursion(5)
23. Define a recursive function to find out sum of digits of a number (number should be user input). (5)
24. Difference between class and object.(3)
25. Define the following: a) Abstraction b) encapsulation (3+3)
26. What is inheritance? Advantages of Inheritance. Types of Inheritance. (2+2+3)
27. Frame class *Account* with object variable account holders name, account number and balance. Create multiple objects of *Account* class and perform withdraw, deposit and check balance operations on that account. Also, keep track of how many accounts you have created by using a class variable.(5)
28. Frame a *Student* class with object variable student name, roll and marks. Create two student objects and display their details.(5)
29. Frame a base class *Person* which contains object variable name and age of a person. It should have a display_person() method which will display details of a person. Frame another two classes *Student* and *Teacher* (both should inherit the base class *Person*) which will contain roll and marks (for *Student*) and subject and experience (for *Teacher*).*Student* class should contain display_student() method which will display student record and *Teacher* class should contain display_teacher() method which will display teacher record. Write a program in python to test the above classes.(10)
30. Explain Method overriding with an example.(5)
31. Which special method is automatically called to create objects in Python? What does self keyword represent?(2+2)
32. Reverse a string using Slicing.(3)
33. Take a string and check Palindrome or not.(5)
34. Explain the following string methods with example: a) isalnum() b) upper() c) lower() d) startswith() e) endswith() Each carries 2 mark
35. Differentiate between list aliasing and list cloning with example.(5)
36. Write a program that uses list comprehension to create a list which contains sum of squares of one even number and one odd number where the even number will come from the numbers 1to 5 and the odd number will come from the numbers 6 to 10.(5)
37. Write a program that uses list comprehension to create a list which contains cubes of all even numbers from the numbers 1 to 20.(3)
38. Implement a STACK using a list.(5)
39. Implement a QUEUE using a list. (5)
40. Write a program that uses filter() function to filter out only even numbers from a list.(3)
41. Write a program that uses map() function to print the square value of each element in a list. (3)
42. Write a program that uses filter() function to create a list of numbers from 1 to 50 that are either divisible by 3 or divisible by 6. (5)

43. Write a program to find multiplication of all values in a list using reduce() function.(3)
44. Explain the following list methods with example: (2)
a) append()
b)insert()
c) remove() d) count() e) extend() f)index()
45. Difference between del(), pop() and remove(). (3)
46. Difference between sort() and sorted().(3)
47. Difference between list and tuple. (3)
48. Write a program that defines a list of countries that are members of SAARC. Take one country name from user and check whether that country is a member of SAARC or not. .(3)
49. Write a program to remove all duplicate objects from a list. .(5)
50. Write a program that creates a list of ten random integers. Then create two lists- Odd list and even list that has all odd and even values in the list respectively. .(5)
51. State the enumerate () function with an example. (3)
52. State with an example how zip() function works. (3)
53. Write a program that has two sequences. First which stores some questions and second stores the corresponding answers.Use the zip() function to form a valid question answer series. (5)
54. Describe the following functions with an example a)filter() b)map() c)reduce()
[3 mark each]
55. Differentiate between append() and insert() with respect to list. (3)
56. Differentiate between list and set. (3)
57.Describe the following set operations using functions and operators
a)union
b)intersection
c)difference
d)issubset
e)issuperset
[each 2 mark]
58.Define dictionary in python. Differentiate it with a list. (2+3)
59.Describe the following operations on dictionary
a)add an item
b)modify an item
c)delete an item
d)return a list of keys
e)return a list of value [2 mark each]
60)WAP that creates a dictionary of cubes of odd numbers in the range 1-10. (3)
61) Create a user defined module which contains a function that will calculate maximum of two numbers.WAP in main module that will take two integer values from user and find out the larger of the two values using the above function. (5)
62)State the difference between local and global variables with a snippet of code. (5)
63)Create your own module and use that module in another module to solve a perticuler problem. (5)
64)Use the numpy module to perform the following operations
a) inverse of a matrix

b) rank of a matrix
c)transpose of a matrix
d)multiplication of two matrices
e)find out determinant of a matrix

[Each 2 mark]

65)WAP using numpy module to create a 3×3 identity matrix. (2)

66)WAP using numpy module to create a 3×2 matrix whose every element is filled with the number 2. (2)

67) WAP using numpy module to create a 3×3 matrix whose every element is filled with random integers numbers between 5-9. (2)

68) WAP in Python using matplotlib to create a pie chart showing how hours in a day are spent on the basis of the activities like ‘Sleeping', 'Eating', 'Working' and 'Playing'. (5)

69) WAP in Python to create a scatter plot using matplotlib that shows the number of hours students spend practicing programming over a week and their corresponding scores in a weekly coding test. (5)

70) WAP in Python to create a bar graph using matplotlib that represents the marks obtained by a student in five subjects: English, Math, Science, History, and Computer Science. (5)

71)Differentiate between testing and debugging.(3)

72) Differentiate between black-box and white-box testing.(5)

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