Question Paper Code: 95801

B.E./B.Tech. DEGREE EXAMINATION, APRIL 2024

Fifth Semester

Information technology

19UIT501 - Object Oriented Programming Using Python

(Regulation 2019)

Duration: Three hours   Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. A=[1,3,5,7,4,6,4,2,9,8]   CO2- App

    Print the 6th element in this list

2. Why python language is referred to as a pure object oriented programming   CO1- U
    language?

3. Whether object and reference variable are same? Support your answer with an   CO1- U
    example

4. How will you make an attribute shared across the objects of a class? Give   CO1- U
    example

5. What are the types of inheritance?   CO1- U

6. Give an example for overriding.   CO1- U

7. List the blocks available to handle exception in python   CO1- U

8. Write the syntax to create your own exception   CO1- U

9. Which python module is used to serialize and deserialize the python objects?   CO1- U

10. Why do you use escape characters in python strings?   CO1- U

PART – B (5 x 16= 80 Marks)

11 (a) Write a Python function check_amicable_numbers(num1, CO2- App (16)
         num2) that accepts two numbers num1 and num 2 as
         arguments and returns True if the given pair of numbers are
         amicable numbers else return false. Invoke the function
         and based on return value print the numbers are amicable
         numbers or not.
         num1 and num2 are said to be amicable numbers if sum of all the
         proper devisors (except num1 itself) of num1 is
         equal to num2 and sum of all the proper devisors of num2 (except
         num1 itself) is equal to num1.
         Example: 220 and 284 are amicable numbers as
         Proper devisors of 220 are 1, 2, 4, 5, 10, 11, 20, 22, 44, 55, 110
         whose sum is 284
         Proper devisors of 284 are 1, 2, 4, 71, 142 whose sum is 220

                                    Or

    (b) Write a Python Function is_palindrome(num) that accepts an CO2- App (16)
         integer num as argument and returns True if the
         num is palindrome else returns false. Invoke the function and
         based on return value print the output.
         Example: num=12321 output: Given number is a palindrome,
         num=12345 output: Given number is not a palindrome

12 (a) What is the purpose of Static Data Members and Functions. CO1- U (16)
         Explain with suitable examples.
                                    Or
    (b) How do you enforce Abstraction and encapsulation in Python. CO1- U (16)
         Give examples.

13 (a) In a library there are many books. Each book is written by an CO2- App (16)
          author. All authors are identified by their name, age and country
          which they belong to. The books are identified by name, ISBN
          code, year of publication and price. The authors write books and
          attend press meetings. Through the books one should be able to
          get details of the author who wrote the book.
          Create the class diagram for representing the above scenario by
          choosing the class names, attributes, methods and relationships
          from the list given.
          Assume that all instance variables cannot be accessed outside the
          class whereas methods can be accessed.
          Write code to implement the aggregation operation

                                    Or

    (b) In a bank, there can be many customers. Some customers are also CO2- App (16)
          privileged customers.
          While all customers have a customer id, name and age, privileged
          customers also have bonus points. Privileged customers can
          get their bonus points increased only whenever they withdraw.
          Otherwise they should not be able to increase their bonus points.
          Also, all customers can withdraw money and take card from
          ATM. All customers also have an account. Each account has
          balance amount, minimum amount and belong to an account type.
          Assume that all the instance variables are public. Determine the
          access specifier for methods based on description given above.
          Write python code to implement the scenario

14 (a) Explain the ways of raising inbuilt exceptions with example.   CO1-U   (16)
                                    Or
    (b) Briefly explain the purpose of abstract classes with example   CO1-U   (16)

15. (a)   Develop a python program that matches a word contain gin 'g'   CO2-App (16)
            followed by one or more e's using regex
                                    Or
    (b) Develop a python program to find all the patterns of   CO2-App (16)
          "1(0+)1" in a given string using python regex

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