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Question Paper Code: 95801

B.E./B.Tech. DEGREE EXAMINATION, NOV 2023

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 language? CO1- U
3. Whether object and reference variable are same? Support your answer with an example CO1- U
4. How will you make an attribute shared across the objects of a class? Give example CO1- U
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, num2)` that accepts two numbers `num1` and `num2` 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 divisors (except num1 itself) of num1 is equal to num2 and sum of all the proper divisors of num2 (except num2 itself) is equal to num1.
Example: 220 and 284 are amicable numbers as
Proper divisors of 220 are 1, 2, 4, 5, 10, 11, 20, 22, 44, 55, 110 whose sum is 284
Proper divisors of 284 are 1, 2, 4, 71, 142 whose sum is 220
Or
- (b) Write a Python Function `is_palindrome(num)` that accepts an 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. Explain with suitable examples. CO1- U (16)
Or
- (b) How do you enforce Abstraction and encapsulation in Python. Give examples. CO1- U (16)

- 13 (a) In a library there are many books. Each book is written by an 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.
CO2- App (16)
- 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 privileged customers. CO2- App (16)
- 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' followed by one or more e's using regex CO2-App (16)
- Or
- (b) Develop a python program to find all the patterns of "1(0+)1" in a given string using python regex CO2-App (16)

