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Question Paper Code: R2806

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

Second Semester

Information technology

R21UIT206 PROGRAMMING FUNDAMENTALS USING PYTHON

(Common to CSE,CSD,CSE(AI&ML),Cyber Security & IOT Engineering)

(Regulations R2021)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. Explain the concept of a variable in Python and why it is essential in programming? CO1-U
2. Differentiate between mutable and immutable objects in Python language with example. CO1-U
3. State the differences between python break and continue statement. CO1-U
4. Write a program that takes an integer input from the user and prints the factorial of that number using a while loop. CO2-App
5. Mention the types of arguments in python. CO1-U
6. What is the purpose of the *args and **kwargs parameters in a function definition? CO1-U
7. List some built in modules in python. CO1-U
8. Write a Python program that takes a string as input and returns the string reversed. CO2-App
9. What is the role of the try, except, and finally blocks in exception handling? Provide an example to illustrate their usage. CO1-U
10. Describe the difference between the search() and match() functions in the re module. When would you use one over the other? CO1-U

PART – B (5 x 16= 80 Marks)

11. (a) (i) Write a Python program that takes two numbers as input from the user and performs the following operations:
Addition, Subtraction, Multiplication, Division, Modulus CO2-App (8)
- (ii) Design a Python program that prompts the user to enter the lengths of three sides of a triangle. Determine and print whether the triangle is equilateral, isosceles, or scalene. CO2-App (8)
- Or
- (b) (i) Explain in detail about the different features of Python. CO2-App (8)
- (ii) Explain in detail about the type conversion in Python with suitable examples. CO2-App (8)
12. (a) (i) Write a Python script that takes user input for the day of the week (as a string). Determine and print whether it is a weekday or a weekend day. CO2-App (8)
- (ii) Create a dictionary of student names and their corresponding grades. Print the names of students who scored above a certain grade. CO2-App (8)
- Or
- (b) (i) Write a program that prints the minimum and maximum of five numbers entered by the user. CO2-App (8)
- (ii) Given two lists of strings, write a program to create a new list containing common elements between the two lists. CO2-App (8)
13. (a) Discuss the concept of recursion in functions. Provide a detailed example of a recursive function, explaining how it works and when recursion is appropriate. CO1-U (16)
- Or
- (b) Summarize the key principles of writing modular and reusable code using functions in Python. Discuss the benefits and best practices associated with effective function usage in programming. CO1-U (16)

14. (a) Explain in detail about any three build-in modules with suitable examples. CO1-U (16)
- Or
- (b) Describe the purpose of the JSON module in Python. Provide an example of how to encode and decode JSON data. Explain the difference between `json.loads()` and `json.dumps()` in the JSON module. CO1-U (16)
15. (a) What is a lambda expression, and how is it different from a regular function in Python? Provide an example of a lambda expression. CO1-U (16)
- Or
- (b) Define a higher-order function and provide an example in Python. Explain how higher-order functions contribute to code modularity and abstraction. CO1-U (16)

