

Register No:

Name:

SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

SIXTH SEMESTER B.TECH DEGREE EXAMINATION(R,S), MAY 2024**Computer Science and Engineering****(2020 SCHEME)**

Course Code : 20CST362
 Course Name : Programming in Python
 Max. Marks : 100

Duration:3 Hours**PART A***(Answer all questions. Each question carries 3 marks)*

1. Explain with the help of a neat diagram what goes on behind the scenes when your computer runs a Python program.
2. List the phases in Software Development Life Cycle.
3. What are the advantages of Tuple over List?
4. Demonstrate the working of +,* and slice operators in python lists.
5. What is event-driven programming, and how does it relate to GUI-based programs?
6. Turtle graphics windows do not automatically expand in size. What happens when a Turtle object attempts to move beyond a window boundary?
7. How do you define an abstract class in Python? Give an example.
8. Define an instance variable and explain its significance in object-oriented programming.
9. Explain the purpose of the OS module in Python.
10. Explain how to add a legend to a plot in Matplotlib using the plt.legend() function.

PART B*(Answer one full question from each module, each question carries 14 marks)***MODULE I**

11. List the different operators in python and estimate the precedence of execution. Explain each type of operators with example. 14

OR

12. a) Explain in detail the concepts of selection statements and looping statements in Python, highlighting their roles in controlling program flow. Provide examples of each type of statement and discuss how they contribute to making Python code more flexible and efficient. 10
- b) Differentiate the use of break and continue statement with examples. 4

MODULE II

13. You are given a dictionary priceList = {"Pen" : 10, "Pencil" : 5, "Eraser" : 5, "Ruler" : 20}, representing products and their rates. 5
- i) Write a function rate that accepts this dictionary along with the name of a product and returns the price of that product. If the product does not exist in the dictionary, then it should return -1. For example, if the name of the product is Ruler then the function should return 20.
- ii) Write another function update to modify the dictionary. The function should accept the dictionary, name of a product and new rate for it. The function should return the updated dictionary as per the following cases: 9
- Case 1: if the rate of the product is negative or zero and the product exists in the dictionary, then the product should be removed from the dictionary.
- Case 2: if the rate of the product is positive and the product exists in the dictionary then the rate of the product in the dictionary should be changed to the new rate that is passed to the function.
- Case 3: if the rate of the product is positive and the product does not exist in the dictionary then the product-rate pair should be added to the dictionary.

OR

14. a) Write a Python program to copy the contents of one file to another. 7
 b) Write a Python program to count the total number of uppercase characters in a file . 7

MODULE III

15. a) Write a code segment that centers the labels RED, WHITE, and BLUE vertically in a GUI window. The text of each label should have the color that it names, and the window's background color should be green. The background color of each label should also be green. 7
 b) List and Explain any seven window components in breezypythongui. 7

OR

16. a) Describe the features of event driven programming. 7
 b) Write a note on the image processing function in Python. 7

MODULE IV

17. a) With examples explain how to handle single and multiple exceptions in Python. 9
 b) Write a python code to simulate exception handling in arithmetic operations. 5

OR

18. a) Explain the `__str__` method and its significance in a class . Give an example. 8
 b) Discuss the difference between class attributes and instance attributes in Python classes, providing examples for each. 6

MODULE V

19. Suppose you have a dataset containing information about monthly sales for a retail store, with columns 'Month' and 'Sales_Amount'. Using Pandas and Matplotlib, perform the following tasks:

1. Load the dataset into a Pandas DataFrame and display the first few rows to understand its structure. 3
2. Calculate the total sales amount for each month. 4
3. Create a line chart to visualize the trend in monthly sales over time. 4
4. Identify the month with the highest sales amount and display it. 4

3

OR

20. a) Explain the key features of Flask that make it suitable for building microservices. 8
 b) What are containers, and how do they facilitate microservices deployment? 6

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