School of Computing Science and Engineering

Bachelor of Technology in Computer Science and Engineering
Mid Term Examination - May 2024

Duration : 90 Minutes
Max Marks : 50

Sem IV - R1UC405C - Programming in Python

General Instructions
Answer to the specific question asked
Draw neat, labelled diagrams wherever necessary
Approved data hand books are allowed subject to verification by the Invigilator

1) Determine Output with Nested if Statements # Question: # Determine the output of the following code: x = 10 y = 5 if x > 5: if y < 10: print("Nested Condition Met") else: print("Inner Else") else: print("Outer Else")
K2 (2)

2) Write a while loop that iterates over numbers from 1 to 5. Print the current value of x during each iteration. If x becomes 3, break the loop and print "Loop terminated early". If the loop completes without encountering a break statement, print "Loop completed successfully".
K1 (3)

3) Justify Output with Nested if and Elif Statements: num = 15 if num > 10: if num % 2 == 0: print("Even Number") else: print("Odd Number") elif num == 10: print("Number is 10") else: print("Number is less than 10")
K2 (4)

4) Evaluate the functionality of the get() method in Python dictionaries. Compare it with direct dictionary key access and discuss scenarios where using get() is advantageous. Provide examples to illustrate your evaluation.
K2 (6)

5) Assume a tuple, t = (9,8,7,6,5,4) Which of the following are not allowed/have an error? Justify the reason for your answer in every following case. print(t[4]) print(t[6]) print(max(t)) print(len(t)) print(t[2:6]) t[5]=3
K3 (6)

6) Analyze the functionality of the index( ), cmp( ), max( ), and min( ) functions/methods in Python. Provide specific examples to showcase how each function/method operates and what kind of output it produces
K3 (9)

7) Apply the concept of a while loop to a real-life scenario. Provide an example situation where a while loop is used to repeatedly perform a specific task until a certain condition is met. Explain the purpose of using a while loop in this context and how it contributes to the efficiency of the process.

K4 (8)

8) implementing a Python program that performs various operations on a list of numbers. The program should utilize functions and methods for effective list manipulation. Requirements: a. List Initialization (2 marks): Initialize an empty list named number_list. b. Function to Populate List (3 marks): Implement a function named populate_list that takes user input to add a specified number of elements to the number_list. Assume valid input. c. Function to Display List (2 marks): Implement a function named display_list that displays the current elements in the number_list. d. List Operations (5 marks): Implement functions for the following list operations: calculate_sum: Calculates and returns the sum of all elements in the list. find_max: Finds and returns the maximum value in the list. remove_duplicates: Removes duplicate elements from the list. sort_list: Sorts the list in ascending order. reverse_list: Reverses the order of elements in the list. Evaluation Criteria: Proper initialization of the list (2 marks) Correct implementation of the populate_list and display_list functions (5 marks) Proper implementation of list operations functions (5 marks)

K4 (12)

OR

Imagine you are developing a simple inventory management system for a grocery store. The store manager wants a program that allows them to add and update products in the inventory, check the stock status, and calculate the total value of the available products. Requirements: a. Product Information Storage (3 marks): Implement a program that stores product information using lists or dictionaries. Each product should have the following details: product_id (integer) product_name (string) unit_price (float) stock_quantity (integer) b. Inventory Management System (9 marks): Implement a program that provides the following functionalities: -Allow the manager to add new products to the inventory. -Allow the manager to update the stock quantity of existing products. -Calculate and display the total value of the available products in the inventory.

K4 (12)