C   **Reg. No. :** ☐☐☐☐☐☐☐☐☐☐☐☐

Question Paper Code: R3409

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2025

Third Semester

Electronics and Communication Engineering

R21UEC309- PRINCIPLES OF PYTHON PROGRAMMING

(Regulations R2021)

Duration: Three hours   Maximum: 100 Marks

Answer ALL Questions

PART A - (5 x 1 = 5 Marks)

1. Which of the following is used to define a block of code in Python language?   CO1- U

   a) Indentation   b) Key   c) Brackets   d) All of the mentioned

2. Which of the following statements create a dictionary?   CO1- U

   a) d = {}   b) d = {"john":40, "peter":45}

   c) d = {40:"john", 45:"peter"}   d) All of the mentioned

3. How do you open a file for writing in Python?   CO2-App

   a) open("file.txt", "w")   b) open("file.txt", "r")

   c) open("file.txt ", "a")   d) open("file.txt", rb")

4. Which of the following character is used to give single-line comments in Python?   CO1-U

   a) //   b) #   c) !   d) /*

5. Which of the following commands will create a list?   CO1-U

   a) list1 = list()   b) list1 = []

   c) list1 = list([1,2, 3])   d) all of the mentioned

PART – B (5 x 3= 15 Marks)

6. A Python program is required to display the squares of numbers from 1 to 5 using a for loop.   CO2- App

7. Explain about string slicing with examples.   CO1-U

8. Develop a Python function named calculate_multiply that takes a list of numbers as input and returns the product of all the elements in the list. Use a loop to perform the multiplication and demonstrate the function with sample data. CO3-App

9. Create a Python program that takes the name and age of the user as input and displays a message whether the user is eligible to vote or not. (The eligible age is 18 years). CO3-App

10. A Python program is required to remove duplicate elements from a list using a set and display the list with unique values. CO2- App

PART – C (5 x 16= 80 Marks)

11. (a) (i) Create a Python program to evaluate and compare the results of the expressions 10 - 4 + 2 and 10 - (4 + 2). Display both results and explain the difference caused by operator precedence. CO3-App (8)

    (ii) Create a Python program that evaluates the expression 8 / 2 * (2 + 2) and prints the result. Explain how operator precedence and parentheses influence the final output. CO3-App (8)

Or

    (b) (i) Create a Python program that checks if a student is eligible for a scholarship. The student must have scored above 80% and have attendance above 75%. Use logical operators to evaluate and display the eligibility status. CO3-App (8)

    (ii) Create a Python program to swap two numbers using the XOR (^) bitwise operator without using a temporary variable. Display the values before and after swapping. CO3-App (8)

12. (a) Imagine you are developing a contact management system to store multiple contacts, each with a name, phone number, and email. You need a data structure that allows easy retrieval, updating, and deletion of contacts. Why is a Python list a suitable choice for storing the contacts? Justify your choice compared to other data structures like tuples, sets, and dictionaries. CO4-Ana (16)

Or

    (b) Imagine you are developing a system that processes customer feedback collected through an online form. The feedback form allows customers to enter comments about their experience, which are then stored and analyzed for sentiment analysis. However, some customers might include special characters, numbers, or even tags in their comments. Why is the "str" data type in Python the most suitable choice for handling customer feedback that may include text, numbers, and special characters? CO4-Ana (16)

13. (a) Explain the concept of a function in Python. Describe how to define and CO1-U (16)
use a simple function, including its structure and key parts with an
example.

Or

(b) Describe the concept of handling exceptions in Python. Include suitable CO1-U (16)
examples to explain how different types of exceptions are managed using
try, except, else, and finally blocks.

14. (a) Explain in detail the different types of operators in Python, providing CO1-U (16)
suitable examples for each.

Or

(b) Describe the concept of looping statements in Python and illustrate how CO1-U (16)
they function with relevant examples.

15. (a) (i) Develop a Python program that accepts a string from the user and CO3-App (8)
checks whether a specific substring exists within it. If found, print the
starting index of the substring; otherwise, display a message indicating
that the substring is not present.

(ii) Create a program that takes a sentence as input and counts the number CO3-App (8)
of vowels in it. Display the total vowel count at the end.

Or

(b) (i) Develop a Python program that checks whether a specific element CO3-App (8)
exists in a given list. If the element is found, return its index; otherwise,
display a message stating that the element is not present in the list.

(ii) Create a program that checks if a given element exists in a tuple and CO3-App (8)
returns its index. If not found, print a message indicating that the element
is not in the tuple.

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