

RAN-2111040102040002
MCA (Sem.-II) Examination April - 2026
Python Programming Language - 204
Time: 3 Hours]
[Total Marks: 70

સૂચના : / Instructions (1) ઉપરોક્ત દર્શાવેલ વિગતો ઉત્તરવહી પર અવશ્ય લખવી. Fill up strictly the above details on your answer book	Seat No.: Student's Signature
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- Q.1. Do as Directed (Any 7) 14**
1. Explain the difference between == and is in Python with a simple example.
 2. Can a Python variable name contain spaces? Justify your answer.
 3. Which Python data type would you use to store a collection of unique elements? Give an example.
 4. How can you take multiple inputs from the user in a single line in Python?
 5. Write a function that takes two numbers and returns the larger number.
 6. How is a Python module different from a package? Give a short explanation
 7. What is recursion? Can every problem be solved using recursion? Explain briefly.
 8. What is a Python anonymous function? How is it different from a normal function?
- Q.2. Explain in Detail 14**
- a. What is a user-defined function in Python? Give 2 advantages of using functions in a program. **06**
 - b. Explain the difference between .strip() and .replace() methods in strings. **05**
- OR**
- b. Explain the difference between keys(), values(), and items() methods in dictionaries. **05**
 - c. Write a Python program to calculate the factorial of a number using a while loop. **03**
- Q.3. Explain in Detail 14**
- a. Write a program that compares 'w' & 'a' modes by writing data into a file and observing changes. **06**
 - b. Explain aliasing and selective importing with suitable examples. **05**
- OR**
- b. Create a module that has a function to : **05**
 - Read a file safely
 - If the file exists → return its content
 - If the file does not exist →
 - o write the error with date and time into system_errors.log
 - o return None
 - c. What is the role of _init_.py file? **03**

Q.4. Justify Following Answers **14**

- a. Write a Python program that performs division and writes the result to a file. Handle the following exceptions separately with proper messages: ZeroDivisionError, ValueError, IOError. **06**

OR

- a. Define a base class Shape and a derived class Square. In the Square constructor (`_init_`), ensure the side length is positive. If a negative value is passed, raise a ValueError. Demonstrate how the parameter *self* is used to assign properties only after successful validation. **06**
- b. Explain how objects interact with class methods. Write a Python program where multiple objects of a class share and modify data and analyse the output. **05**
- c. Explain the purpose of the else clause in a try block. **03**

Q.5. Explain in Detail

- a. Create a 3D NumPy array and write a program to find its total memory usage using `itemsize` and `size`. Also explain the difference between `ndim` and `shape`. **06**

OR

- a. Explain how NumPy stores array data in memory. What is the role of `itemsize`, and how does it help in fast data access? **06**
- b. Write a program to display prime numbers in a given range. **05**
- c. Explain 'is' and 'is not' operators in Python. **03**
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