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**MAULANA AZAD NATIONAL INSTITUTE OF TECHNOLOGY BHOPAL**  
**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING**

Course: B.Tech. Semester: III Branch: CSE Subject Code: CSE24213  
Subject Name: Principles of Programming Languages Date: 06/10/2025 Maximum Marks: 20  
Duration: 1 Hour Time: 9:30 AM to 10:30 PM

Note: Attempt all the questions. Answers should be brief and to the point. Make suitable assumptions wherever necessary and clearly state the same.

Q. No.	Questions	Marks	COs
1.	What is the need for ensuring the reliability of a computer program? Discuss the characteristics of programming languages that contribute to program reliability, apart from those characteristics that are primarily responsible for writability. Support your answer with suitable examples.	5	CO1
2.	Define storage duration in programming languages. Explain the different types of storage durations. How do these types of storage durations influence program execution? Support your explanation with suitable code examples.	5	CO2
3.	"Write a program that defines two classes: Room and Cupboard. Both classes should have three private data members representing length, height, and width. In the main function, create objects of both classes. The program should include a function to calculate the volume of both objects and display a message indicating: "The cupboard cannot fit inside the room" if the cupboard's volume is greater than the room's volume. Otherwise, calculate and display how many such cupboards can fit inside the room (using integer division of room volume by cupboard volume). Define all the necessary functions for this program, including constructor, destructor, data input function, and data display function."	5	CO3
4.	Write a program that defines two classes: Create a base class Book with data members: title and price, along with a constructor, a copy constructor, and functions to input and display the details. Derive a class EBook from Book, with additional data members: filesize and format. Implement a constructor, a copy constructor, and functions to input and display details. In the main() function: Create an object of EBook and input its details. Create another object of EBook using the copy constructor and display its details to show that the values were copied correctly. Your program should clearly demonstrate how copy constructors work in the context of inheritance	5	CO3

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