Seat No.: _____ Enrolment No. 102CTBM[redacted]

NATIONAL FORENSIC SCIENCES UNIVERSITY

(Delhi Campus)
Mid Semester Examination- November 2022
Program Name - Semester – I/III✓

Subject Code: CTMTCSE SIII P6 **Date: 15/11/22**
Subject Name: System Analysis Design and Unified Modelling Language
Time: 11:30 – 1:00 pm **Total Marks: 50**

Instructions:
1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1		Attempt all Questions:	Marks
	(a)	**Define the** following with example : 1) Aggregation 2) Association **Or** **Define the** following with example : 1) Multiple Inheritance 2) Constraints	04
	(b)	Define Components. What are the differences between components and classes? Explain with example.	05
	(c)	**What is** difference between UML and OOAD ? Explain why object oriented approach is preferable as compared to other approaches.	07
Q.2		Attempt any 3 questions:	
	(a)	Draw the class diagram for stock maintenance system.	06
	(b)	Draw the use case diagram for online railway reservation system.	06
	(c)	Draw the state chart diagram for university management system.	06
	(d)	Draw the component diagram for Aadhar management system.	06
Q.3		Attempt any 2 questions:	
	(a)	Differentiate between : i) Components and Classes of models ii) Interfaces and classes iii) Collaboration diagram and Component diagram iv) Links and Associations	08
	(b)	What is the importance of modeling? What are principles of modeling? Explain with example.	08
	(c)	Consider the building of a house. Explain the concept of Modularity and how modularity helps better work allocation and better performance.	08

-END OF PAPER-

Seat No.: [redacted] Enrolment No. 102CTB[redacted]

NATIONAL FORENSIC SCIENCES UNIVERSITY

B.Tech. - M.Tech. Computer Science & Engineering (Cyber Security) - Semester – III

Examination – January-2023

Subject Code: CTBTCSE SIII P6 **Date: 18/01/2023**

Subject Name: SAD & UML

Time: 11:00 AM to 2:00 PM **Total Marks: 100**

Instructions:

1. **Write down each question on separate page.**
2. **Attempt all questions.**
3. **Make suitable assumptions wherever necessary.**
4. **Figures to the right indicate full marks.**

Q.1	(a)	Draw System Development life cycle and explain its phases in detail.	06
	(b)	Explain Nested States using suitable state diagram.	06
	(c)	Define following in terms of Class Modelling: Enumeration, Multiplicity, Scope and Visibility.	08
		OR	
	(c)	Draw Class diagram for Library Management System.	08
Q.2	(a)	Explain N-ary Association with suitable example.	06
	(b)	Explain Concurrency within an object using suitable state diagram.	06
	(c)	Explain Reification and Metadata with suitable example.	08
		OR	
	(c)	Draw activity diagram for transferring money from account A to account B.	08
Q.3	(a)	Explain Constraints and Derived Data with suitable example.	06
	(b)	Explain Abstraction and Encapsulation in detail with example.	06
	(c)	Explain procedural sequence models in detail.	08
		OR	
	(c)	Draw State diagram for vending machine.	08
Q.4	(a)	What is the need for Object Modelling? Explain in detail.	06
	(b)	Explain Use Case Include and Extend Relationships.	06
	(c)	Draw Sequence diagram for return of a book for Library Management System	08
		OR	
	(c)	Draw and explain various components of Class diagram.	08
Q.5	(a)	Explain design optimization in detail.	06
	(b)	Explain various components of Activity diagram.	06
	(c)	Explain different architectural styles for System Design.	08
		OR	
	(c)	Draw use case diagram for Bank Management system.	08

END OF PAPER