*R22 Regulation* *Subject code:4P5GD*

# TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

## B.Tech V Semester Supplementary Examinations, April 2026

## OBJECT ORIENTED ANALYSIS &DESIGN

*(CSE(AI&ML))*

*Maximum Marks: 60* Date:27.04.2026 Duration: 3 hours

**Note:** **1.This question paper contains two parts A and B.**
**2. Part A is compulsory which carries 10 marks. Answer all questions in Part A.**
**3. Part B consists of 5 Units. Answer any one full question from each unit.**
**4. Each question carries 10 marks and may have a, b, c, d as sub questions.**

Part-A

| All the following questions carry equal marks (10X1M=10 Marks) | | Marks | CO | BTL |
|---|---|---|---|---|
| 1.a) | What is the importance of modelling in software development? | 1M | 1 | L1 |
| b) | Define the term "Software Development Life Cycle." | 1M | 1 | L2 |
| c) | What are the different types of relationships in UML? | 1M | 2 | L1 |
| d) | Explain package and mention its purpose in UML | 1M | 2 | L2 |
| e) | Mention any two components of a use case diagram. | 1M | 3 | L2 |
| f) | What is an activity diagram used for? | 1M | 3 | L1 |
| g) | What is a state machine? | 1M | 4 | L1 |
| h) | Define process and thread. | 1M | 4 | L2 |
| i) | What is the purpose of a deployment diagram? | 1M | 5 | L1 |
| j) | Define framework with an example. | 1M | 5 | L2 |

Part-B

| Answer All the following questions. (5X10M=50Marks) | | Marks | CO | BTL |
|---|---|---|---|---|
| 2 | Develop a simple conceptual model using UML for an online bookstore. | 10M | 1 | L3 |
| | OR | | | |
| 3 | Construct a UML architecture model that supports iterative and incremental software development. | 10M | 1 | L3 |
| 4 | Illustrate how classes and relationships are represented in UML class diagrams with suitable examples. | 10M | 2 | L2 |
| | OR | | | |
| 5 | Demonstrate the use of advanced structural elements such as interfaces and packages in system design. | 10M | 2 | L2 |
| 6 | Analyze the role of actors and use case relationships (include, extend, generalization) in improving model clarity. | 10M | 3 | L4 |
| | OR | | | |
| 7 | Compare the strengths of use case and activity diagrams in behavioral modelling. | 10M | 3 | L4 |

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|---|---|---|---|---|
| 8 | Develop a state machine diagram to represent the life cycle of an order in an e-commerce system. | 10M | 4 | L3 |
| | OR | | | |
| 9 | Construct a state chart diagram for an ATM transaction process. | 10M | 4 | L3 |
| 10 | Explain the purpose of component and deployment diagrams in software architecture. | 10M | 5 | L2 |
| | OR | | | |
| 11 | Describe how design patterns and frameworks promote software reusability. | 10M | 5 | L2 |