R22 Regulation *Subject code: 4P7HB*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech VII Semester Supplementary Examinations, May 2026

DATABASE SECURITY

(CSE(DS))

Maximum Marks: 60 Date:14.05.2026 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	Bloom Tx
1.a)	What are the main components of the Take-Grant Model?	1M	1	Remember
b)	Write the differences between the Acten Model and PN Model.	1M	1	Analyze
c)	Define "Security Levels" in the Bell–LaPadula Model.	1M	2	Remember
d)	Mention one feature of the Sea View Model.	1M	2	Remember
e)	What is the role of the Trusted Computer System Evaluation Criteria (TCSEC)?	1M	3	Remember
f)	Define secure DBMS design.	1M	3	Remember
g)	What is the function of the RETISS System?	1M	4	Remember
h)	What is the IDES system?	1M	4	Remember
i)	What is the SORION Model?	1M	5	Remember
j)	Define the Frame-Based System Model.	1M	5	Remember

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	Bloom Tx
2	a) Explain the concept of port monitoring and trusted IP addresses.	5	1	Understand
	b) Compare the Take-Grant and Acten Models of database security.	5	1	Apply
	OR			
3	a) Explain the Monitor for attack in database security.	5	1	Understand
	b) Describe the structure and components of the Access Matrix Model with a suitable example.	5	1	Understand
4	a) Explain the Biba Model in detail with neat diagram.	5	2	Understand
	b). Illustrate Bussolati and Martella's Model for distributed databases, explaining its key features.	5	2	Understand
	OR			
5	a) Discuss the Hartson & Hsiao and Fernandez Models for database security.	5	2	Understand
	b) Elaborate on the Lattice Model for the Flow Control.	5	2	Apply

6	a) Discuss the fundamental software design concepts for secure systems.	5	3	Understand
	b) Explain resource protection and control flow mechanisms.	5	3	Apply
	OR			
7	a) Discuss the criteria for trusted computer system evaluation.	5	3	Apply
	b) Describe the design of secure DBMS and its components.	5	3	Apply
8	a) Compare IDES and ASES systems.	5	4	Understand
	b) Discuss various types of attacks in statistical databases.	5	4	Analyze
	OR			
9	a) Discuss RETISS system.	5	4	Understand
	b) Explain the types of intrusion detection systems.	5	4	Understand
10	a) Illustrate the Model for the Protection of Object-Oriented Systems.	5	5	Apply
	b) Explain the architecture and key security features of the Orion 2.0 model.	5	5	Understand
	OR			
11	a) Compare SORION and ORION models for object-oriented database security.	5	5	Analyze
	b) Describe the model for protection of frame-based systems.	5	5	Apply