



R22 Regulation

Subject code:4P7HB

# TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

**B.Tech VII Semester Regular Examinations, November 2025**

## DATABASE SECURITY

(CSE(DS))

Maximum Marks: 60

Date: 01.12.2025

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 various components of an information system?	1M	1	Remember
b)	Are databases necessary for storing data?	1M	1	Remember
c)	What is Role Lattice?	1M	2	Remember
d)	Which model is specifically designed for Distributed Databases?	1M	2	Remember
e)	What are the various services provided by the Operating System for Database Security?	1M	3	Understand
f)	Explain what the use of Role in Database security is.	1M	3	Understand
g)	What is Insecure Direct Object Reference?	1M	4	Understand
h)	What is the main goal of a Statistical Database?	1M	4	Remember
i)	How do next-generation models help database security?	1M	5	Analyze
j)	Write any two differences between frame-based and object-oriented systems.	1M	5	Understand

### Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	Bloom Tx
2	a) What are the various problems faced in Database security controls? b) Illustrate the Take-Grant model to demonstrate how a subject 'S1' can grant 'read' rights on an object 'O1' to another subject 'S2'.	5M 5M	1 1	Understand Analyze
OR				
3	a) Based on the fundamental models, what are the common components every security model must define? Explain. b) Compare and contrast the Take-Grant Model and the PN Model. What are their key differences in representing access?	5M 5M	1 1	Apply Apply
4	a) Write about Dion's Model and Sea View Model. b) Explain Biba's Model.	5M 5M	2 2	Understand Understand
OR				

5	a) Compare the multi-level security approaches of the Bell-LaPadula (Confidentiality) and Biba (Integrity) models.	5M	2	Analyze
	b) How does the Lattice Model handle information flow control? Explain with a simple lattice structure.	5M	2	Analyze
6	a) Write about Resource Protection in detail.	5M	3	Apply
	b) Explain the methodological approach to security	5M	3	Apply
OR				
7	a) What are the available DBMS security packages?	5M	3	Remember
	b) Define types of attacks in Database Security along with one Intrusion Detection System.	5M	3	Remember
8	a) What is IDES system? Explain with example.	5M	4	Apply
	b) Compare and contrast the RETISS and ASES intrusion detection systems.	5M	4	Apply
OR				
9	a) "Choosing an inference control is a trade-off between data utility and security." Evaluate this statement based on the evaluation criteria for controls.	5M	4	Evaluate
	b) What are the different types of attacks on statistical databases? Explain any one inference control method to prevent them.	5M	4	Analyze
10	a) Explain Kogan's Model for database security.	5M	5	Apply
	b) Explain how to protect Active Databases.	5M	5	Apply
OR				
11	a) Difference between SORION Model and Object-Oriented System Model.	5M	5	Analyze
	b) What are the unique security challenges in Active Databases? Propose a set of rules for their protection.	5M	5	Create