Computer Science & Engineering

BACHELOR OF TECHNOLOGY (CBCS) (2021-COURSE)
B. Tech. Sem - IV CS&E : WINTER: 2025
SUBJECT: ITC-II: DATABASE SYSTEMS

Day : Wednesday
Date : 03/12/2025

W-25585-2025

Time : 10:00 AM-01:00 PM
Max. Marks : 60

N.B.

1) All questions are **COMPULSORY**.
2) Figures to the right indicate **FULL** marks.

Q.1	Explain data model and list the types of data model used?	**(10)**
	OR	
Q.1	Explain E – R diagram, entity, attribute and relationship. Draw ER diagram for hospital management system?	**(10)**
Q.2	Explain type of integrity constraints with example?	**(10)**
	OR	
Q.2	Explain relation algebra operators?	**(10)**
Q.3	What is Normalization? Explain 1NF, 2NF and BCNF with suitable example?	**(10)**
	OR	
Q.3	Define functional dependency with suitable example?	**(10)**
Q.4	Explain different DDL and DML, DCL commands with example?	**(10)**
	OR	
Q.4	Explain transaction control commands in SQL With example?	**(10)**
Q.5	State and explain the lock based concurrency control with suitable example?	**(10)**
	OR	
Q.5	Define transaction? List the properties of transaction Explain?	**(10)**
Q.6	Explain in detail about geographic databases and spatial?	**(10)**
	OR	
Q.6	Explain in detail about multimedia databases, NOSQL and Hadoop?	**(10)**

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BACHELOR OF TECHNOLOGY (CBCS - 2023)
B. Tech. Sem-IV Computer Science & Engineering : WINTER: 2025
SUBJECT: COMPUTER NETWORKS

Day : Wednesday
Date : 03/12/2025

W-29277-2025

Time : 10:00 AM-01:00 PM
Max. Marks : 60

NB :
1. Assume suitable data, if necessary.
2. Draw neat labelled diagrams WHEREVER necessary.
3. Figures to the right indicate FULL marks for the question.
4. All questions are COMPULSORY.

Q. 1	Explain the OSI reference model. Describe the function of each layer with suitable examples.	(10)
	OR	
Q. 1	Describe the following network devices and their roles in a network: Bridge, Switch, Router, Brouter, and Access Point.	(10)
Q. 2	Discuss error correction techniques. How does Hamming Code help in correcting single-bit errors? Illustrate with suitable example.	(10)
	OR	
Q. 2	Explain Carrier Sense Multiple Access (CSMA) protocols. Discuss the operation of CSMA, CSMA/CD, and CSMA/CA with suitable diagrams.	(10)
Q. 3	Compare and contrast IPv4 and IPv6 addressing schemes. Explain the advantages of IPv6 over IPv4.	(10)
	OR	
Q. 3	Explain in detail Unicast Routing Protocols.	(10)
Q. 4	Draw TCP header. Explain significance of each field in TCP header.	(10)
	OR	
Q. 4	Discuss silly window syndrome problem? How it is avoided? Explain.	(10)
Q. 5	Describe the Email delivery process from sender to recipient using SMTP and POP3. Include a diagram for clarity.	(10)
	OR	
Q. 5	Describe the File Transfer Protocol (FTP) in detail. How does it use separate control and data connections?	(10)
Q. 6	Differentiate between symmetric and asymmetric encryption. Explain how they work and give real-world examples where each type is used.	(10)
	OR	
Q. 6	Explain the role of firewalls in network security. Discuss the different types of firewalls and their functions.	(10)

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