Reg.No.:												

VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN
[AUTONOMOUS INSTITUTION AFFILIATED TO ANNA UNIVERSITY, CHENNAI]
Elayampalayam – 637 205, Tiruchengode, Namakkal Dt., Tamil Nadu.

Question Paper Code: 60013

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – NOV. / DEC. 2025
Third Semester
Computer Science and Engineering
U23IT404 – DATABASE MANAGEMENT SYSTEMS
(Regulation 2023)

Time: Three Hours | Maximum: 100 Marks

Answer ALL the questions

Knowledge Levels (KL)	K1 – Remembering	K3 – Applying	K5 - Evaluating
	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	List the advantages of DBMS.	2	K1	CO1
2.	Define Data Manipulation language.	2	K1	CO1
3.	Define weak and strong entity sets.	2	K1	CO2
4.	Express join dependency and fifth normal form.	2	K2	CO2
5.	Define Two Phase Commit protocol.	2	K1	CO3
6.	List down the ACID properties.	2	K1	CO3
7.	What is Indexing?	2	K1	CO4
8.	Identify the use of RAID.	2	K2	CO4
9.	Outline the steps involved in query processing.	2	K2	CO5
10.	What is a heterogeneous distributed database?	2	K2	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.		Questions	Marks	KL	CO
11.	a)	With the help of a neat block diagram, explain the basic architecture of a database management system.	13	K1	CO1
		(OR)			
	b)	Explain the different types of data models with suitable examples.	13	K1	CO1

12.	a)	Briefly discuss about the Functional Dependency Concepts with example.	13	K3	CO2
		(OR)			
	b)	State the need for normalization of a Database. Explain 1NF, 2NF, 3NF and BCNF with suitable example.	13	K3	CO2
13.	a)	Illustrate and explain conflict serializability and view serializability with an example.	13	K2	CO3
		(OR)			
	b)	Brief the states of a transaction with a neat diagram.	13	K2	CO3
14.	a)	How the records are represented and organized in files? Explain with suitable example.	13	K2	CO4
		(OR)			
	b)	How does a DBMS optimize queries? Explain the various types of query optimization with suitable examples.	13	K2	CO4
15.	a)	Explain with diagrammatic illustration the architecture of distributed database management system.	13	K2	CO5
		(OR)			
	b)	Summarize the concepts of database security.	13	K2	CO5

PART – C

(1 x 15 = 15Marks)

Q.No.		Questions	Marks	KL	CO
16.	a)	Construct an E-R diagram for a car insurance company whose customers own one or more cars each. Each car has associated with it zero to any number of recorded accidents. Each insurance policy covers one or more cars, and has one or more premium payments associated with it. Each payment is for a particular period of time and has an associated due date, and the date when the payment was received?	15	K3	CO2
		(OR)			
	b)	Describe the structure of B+ tree and give the algorithm for searching in a B+ tree with example.	15	K2	CO4