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Reg. No.												

Question Paper Code	12036

B.E. / B.Tech - DEGREE EXAMINATIONS, APRIL / MAY 2023

Fourth Semester

Computer Science and Engineering

(Common to Computer and Communication Engineering, Information Technology &
Third Semester - Artificial Intelligence and Data Science)

20CSPC402 - DATABASE MANAGEMENT SYSTEMS

(Regulations 2020)

Duration: 3 Hours | Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

		Marks, K-Level, CO
1.	Define Entity – Relationship Model.	*2,K1,CO1*
2.	List any five applications of DBMS.	*2,K1,CO1*
3.	Discuss about mapping cardinality.	*2,K2,CO2*
4.	Write the advantages of BCNF.	*2,K2,CO2*
5.	Define deadlock and list out the prevention techniques.	*2,K1,CO3*
6.	List out the different modes of lock and define 2-Phase Locking.	*2,K2,CO3*
7.	Compare Static Hashing and Dynamic Hashing.	*2,K2,CO4*
8.	Distinguish between fixed length record and variable length records?	*2,K2,CO4*
9.	What are Goals of Distributed Database systems?	*2,K2,CO5*
10.	Write the main concepts of IR systems and its types.	*2,K2,CO5*

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

11.	a)	With the help of the block diagram, describe the basic architecture of a database management system.	*13,K2,CO1*
		OR	
	b)	Draw an E-R diagram for a banking enterprise with almost all components and explain.	*13,K2,CO1*
12.	a)	Describe the Relational Model in detail with an example.	*13,K2,CO2*
		OR	
	b)	Describe in detail about Functional Dependency and Solve the following relation R and set of functional dependencies F: R (A, B, C, D, E), F = {AC -> E, B->D, E-> A) }. Show all candidate keys.	*13,K2,CO2*

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create

13. a) Illustrate the conflict serializability and view serializability with an example. *13,K2,CO3*

OR

b) What is transaction? Explain in detail about the ACID Properties with suitable example. *13,K2,CO3*

14. a) Examine about the RAID system. How does it improve performance and reliability? *13,K2,CO4*

OR

b) Discuss in detail about query processing and optimization techniques with necessary algorithm. *13,K2,CO4*

15. a) Write short notes on XML Hierarchical model and XML Schema. *13,K2,CO5*

OR

b) List out the types of NOSQL databases and explain in detail. *13,K2,CO5*

PART - C (1 × 15 = 15 Marks)

16. a) Consider the following database relations containing the attributes
Book–id
Subject–Category–of–
Book Name–of–Author
Nationality–of–Author
With book–id as the primary key.

(i) What is the highest normal form satisfied by this relation? Explain in detail. *8,K3,CO6*

(ii) Suppose the attributes Book–title and Author–address are added to the relation, and the primary key is changed to {Name–of–Author, Book–title}, what will be the highest normal form satisfied by the relation? *7,K3,CO6*

OR

b) Create B tree and B + tree to insert the following key values (the order of the tree is three) 32, 11, 15, 13, 7, 22, 15, 44, 67, 4. *15,K3,CO6*