(Please write your Enrollment Number) Enrollment No. 03201192023

End-Term Examination
(CBCS)(SUBJECTIVE TYPE)(OffLine)
Course Name: <B.Tech (AI&ML)>, Semester:<3rd>
(December, 2024)

Subject Code: BAM 201	Subject: Database Management Systems
Time :3 Hours	Maximum Marks :60

Note: Q1 is compulsory. Attempt one question each from the Units I, II, III & IV.

Q1		(5*4 = 20)
	a) What is the difference between logical and physical data independence?	
	b) Differentiate between Hierarchical data model and Network data model.	
	c) Explain the roles and responsibilities of Database Administrator.	
	d) What do you mean by dependency preserving decomposition and lossless join property? Explain with relevant examples.	
	UNIT I	
Q2	Draw an ER diagram to model the Hospital Management System. Identify the primary key and foreign key in the design. Clearly indicate the entities, attributes, relationships & key constraints.	(10)
Q3	Describe the three schema architecture with the help of a diagram. Why do we need mapping between schema levels?	(10)
	UNIT II	
Q4	Write SQL query for the following: USER_SCHEME(Card_No,B_Name, B_Addr) SUPPLIER_SCHEME(Acc_No.,S_Name,Price,DOS) BORROWER(Acc_No., Card_No., DOI) i) Find out the name and address of borrowers who have issued a book on 14/4/15. ii) Find the name of the suppliers with maximum price. iii) Find all the books with supplier 'NAROSA'. iv) Find all the books issued by 'Rashi'. v) Find the book with the maximum price.	(10)
Q5	What are the different integrity constraints in a database model? Explain each with examples.	(10)
	UNIT III	
Q6	Consider the relation R = {A, B, C, D, E, F, G, H, I, J} and the set of functional dependencies F = {AB->C, A->DE, B->F, F->GH, D->IJ}. Decompose R into 1NF, 2NF & 3NF relations.	(10)
Q7	Decompose the following relation into 1NF, 2NF and 3NF R= (A, B, C, D, E) with a set of functional dependencies F as follows: F= {A→ABC, CD→CDE, B→BD, E→EA}	(10)
	UNIT IV	
Q8	Explain the concept of concurrency control using time-stamp based protocols.	(10)
Q9	What do you understand by ACID properties of transactions and how do we address the issues arising during simultaneous execution of transactions.	(10)