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B.N.M. Institute of Technology

An Autonomous Institution under VTU

Model Question Paper

Course Name: Database Management System **Course Code: 22ISE143**
Duration: 3 Hour **Max. Marks: 100**
Semester: IV

Note: 1. Answer any one full question from each Module **(5Q x 20M = 100 Marks)**

Module 1					
Q. No	**Questions**	**Marks**	**CO**	**PO**	**Cognitive Level**
1 (a)	Explain Database Languages.	8	CO1	PO1, PSO2	Understand
1 (b)	Explain Three schema Architecture with the help of diagram.	6	CO1	PO1, PSO2	Understand
1 (c)	Draw ER diagram of Order Database.	6	CO1	PO1, PSO2	Understand
OR					
2 (a)	Discuss the various component modules of a DBMS and their interaction with a neat diagram.	8	CO1	PO1, PSO2	Understand
2 (b)	Explain the characteristics of database approach.	6	CO1	PO1, PSO2	Understand
2 (c)	Draw ER diagram of Movie Database.	6	CO1	PO1, PSO2	Understand
Module 2					
3 (a)	Explain different types of Joins in SQL	10	CO2	PO2, PO3, PO4, PSO2	Apply
3 (b)	Explain relational model constraints.	10	CO2	PO2, PO3, PO4, PSO2	Apply
OR					
4 (a)	Explain primary key , referential integrity and foreign key concepts with the specific example	10	CO2	PO2, PO3, PO4, PSO2	Apply

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4 (b)	Explain union, Intersection and Minus Operations of Relational algebra with examples	10	CO2	PO2, PO3, PO4, PSO2	Apply
	Module 3				
5 (a)	Identify the Aggregate functions and Grouping with example.	6	CO3	PO2,PO3 PSO2	Apply
5 (b)	Consider the below table: Orders(ord_no , purch_amt, ord_date , customer_id, salesman_id) a) Write a SQL query to calculate total purchase amount of all orders. b) Write a SQL query to calculate the average purchase amount of all orders. c) Write a SQL query that counts the number of unique salespeople. d) Write a SQL query to find the maximum and minimum purchase amount.	8	CO3	PO2,PO3 PSO2	Apply
5 (c)	Develop the SQL queries for the following: a) Retrieve the birth date and address of employee whose employee id is 10. b) Retrieve the name and address of all employees who work for 'Research' department. c) Retrieve all employees in department 5 whose salary is between 30000 and 40000 d) Retrieve distinct salaries of employees.	6	CO3	PO2,PO3 PSO2	Understand
	0R				
6 (a)	Identify views in SQL. Create syntax to create and drop views.	8	CO3	PO2,PO3 PSO2	Apply
6 (b)	Consider the following schema SALESMAN (Salesman_id, Name, City, Commission) CUSTOMER (Customer_id, Cust_Name, City, Grade, Salesman_id) ORDERS (Ord_No, Purchase_Amt, Ord_Date, Customer_id, Salesman_id) Write SQL queries to a) Count the customers with grades	6	CO3	PO2,PO3 PSO2	Apply

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	above Bangalore's average. b) Find the name and numbers of all salesmen who had more than one customer. c) List all salesmen and indicate those who have and don't have customers in their cities (Use UNION operation.) d) Create a view that finds the salesman who has the customer with the highest order of a day**.**				
6 (c)	Develop the SQL queries for the following: a) Write the syntax to Create, Alter and Drop table. b) Write SQL Query to Create Employee table with the following attributes: eid, ename and salary. c) Alter table employee by adding one more attribute called address. d) Give syntax to drop table employee and drop column salary	6	CO3	PO2,PO3 PSO2	Understand
Module 4					
7 (a)	Give the minimal cover Algorithm. Find the minimal cover using the minimal cover algorithm for the following functional dependency. F = {B->A, D->A,AB->D}	8	CO4	PO1, PSO2	Analyze
7 (b)	Consider the following relation R {Studio, StudioCity, CityTemp} Assume Primary Key as {Studio} The Dependencies are: {Studio} → {StudioCity} {StudioCity} → {CityTemp} Check whether the given R is in 3NF? If not convert into 3NF	6	CO4	PO1, PSO2	Analyze
7 (c)	Explain 2NF ,3NF and BCNF with examples	8	CO4	PO1, PSO2	Analyze
OR					
8 (a)	Consider the relation Emp-Proj ={SSN, Pnumber,Hours, Ename,Pname,Plocation} Assume {SSN,Pnumber } as Primary key The dependencies are:	8	CO4	PO1, PSO2	Analyze

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	{SSN,Pnumber}->Hours SSN->Ename Pnumber->{Pname,Plocation} Normalize the above relation to 2NF				
8 (b)	Define Functional Dependency. Consider two sets of Functional dependency F={A->C,AC->D,E->AD,E->H} and G={A->CD, E->AH} Are they equivalent? Explain in Detail.	6	CO4	PO1, PSO2	Analyze
8 (c)	Explain 1NF with suitable example	6	CO4	PO1, PSO2	Analyze
Module 5					
9 (a)	Identify the Types of databases of NOSQL and Explain in detail.	8	CO5	PO1, PO2, PO5,PSO2	Analyze
9 (b)	Build Different states of Transactions with neat diagram and Explain in detail.	6	CO5	PO1, PO2, PO5,PSO2	Analyze
9 (c)	Identify the need of Concurrency control and explain with examples.	6	CO5	PO1, PO2, PO5,PSO2	Analyze
OR					
10 (a)	Identify the ACID Properties of Transactions and Explain in detail	8	CO5	PO1, PO2, PO5,PSO2	Analyze
10 (b)	Identify the reasons for failure of transactions	6	CO5	PO1, PO2, PO5,PSO2	Analyze
10 (c)	Compare NOSQL and RDBMS.	6	CO5	PO1, PO2, PO5,PSO2	Analyze