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PRESIDENCY UNIVERSITY

BENGALURU

Make Up Examinations – December 2025

Date: 26 – 12- 2025

Time: 1.00pm to 04.00pm

School: SOCSE	Program: B.Tech	
Course Code: CSE3156	Course Name: Database Management Systems	
Semester: MK	Max Marks: 100	Weightage: 50%

CO - Levels	C01	C02	C03	C04	C05
Marks	14	14	36	36	-

Instructions:

- (i) Read all questions carefully and answer accordingly.
- (ii) Do not write anything on the question paper other than roll number.

Part A

Answer ALL the Questions. Each question carries 2marks.

10Q x2M=20M

1	What is Strong Entity? Give an example.	2 Marks	L1	C01
2	Define Participation Constraint. List its two types.	2 Marks	L1	C01
3	What is Super Key? Give an example.	2 Marks	L1	C02
4	What are Triggers and why trigger is used?	2 Marks	L1	C02
5	Define Functional Dependency. When do you say a given functional dependency is valid?	2 Marks	L1	C03
6	Given R(A,B,C,D,E) A->B B->C C->D D->E	2 Marks	L1	C03

	Find the closure of A, AD,B.			
7	What is Redundancy and Normalization?	2 Marks	L1	CO3
8	Define Transaction. Give an example.	2 Marks	L1	CO4
9	Define two modes of Concurrency.	2 Marks	L1	CO4
10	What is OODBMS? List any two applications of OODBMS.	2 Marks	L1	CO4

Part B

Answer the Questions:

Total 80 Marks.

11.	a.	<p>ER diagram for the COMPANY schema, with all role names included and with structural constraints on relationships specified using alternative notation (min, max).</p>	10 Mark s	L2	CO1
		<p>Consider the above ER diagram representing a Company database:</p> <ol style="list-style-type: none"> Identify all the strong and weak entities. List the attributes associated with each entity. Determine the type of attribute for all the entities (e.g., simple, composite, derived, key, multi-valued etc). Describe participation constraint between the entities. Identify the type of relationship between entities. 	10 Mark s	L2	CO2
	b.	Describe different clauses available in SQL.			

Or

12.	a.	Explain the following relational algebra operations with an example. i. Select ii. Union iii. Right Outer Join iv. Equi Join	10 Marks	L2	CO1
	b.	Illustrate SQL aggregate commands with example.	10 Marks	L2	CO2

13.	a.	Consider a relation scheme $R = (A, B, C, D, E, H)$ on which the following functional dependency hold: $\{A \rightarrow B, BC \rightarrow D, E \rightarrow C, D \rightarrow A\}$. Find the Closure of A, B, D, AB, CD, DEH, CD Find the candidate keys. Find the total number of super keys of relation R.	15 Marks	L3	CO3
	b.	Construct the informal guidelines for ER design.	5Marks	L2	CO3

OR

14.	a.	Consider the table and functional dependency given below: <table border="1" data-bbox="268 1256 1142 1709"><thead><tr><th>Em p_id</th><th>Emp_Name</th><th>Phone_ No</th><th>Pno</th><th>Pname</th><th>P_Hrs</th></tr></thead><tbody><tr><td>1</td><td>John Basu</td><td>88833, 98982</td><td>1</td><td>AI</td><td>40</td></tr><tr><td>2</td><td>Nithin Reddy</td><td>89340, 98874</td><td>1</td><td>AI</td><td>50</td></tr><tr><td>3</td><td>Raga Manasa</td><td>91223, 99883, 33498</td><td>3</td><td>CC</td><td>60</td></tr></tbody></table> Functional Dependency: $\{Emp_id \rightarrow Pno, Pno \rightarrow Pname, (Emp_id, Pno) \rightarrow P_Hrs\}$ Normalize the given table into 1NF, 2NF, 3NF and BCNF. Justify your decomposition.	Em p_id	Emp_Name	Phone_ No	Pno	Pname	P_Hrs	1	John Basu	88833, 98982	1	AI	40	2	Nithin Reddy	89340, 98874	1	AI	50	3	Raga Manasa	91223, 99883, 33498	3	CC	60	15 Marks	L3	CO3
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1	John Basu	88833, 98982	1	AI	40																								
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3	Raga Manasa	91223, 99883, 33498	3	CC	60																								
b.	Construct the example for Partial functional dependency and Fully functional dependency.	5 Marks	L3	CO3																									

15.	a.	Explain the causes of transaction failure.	10 Marks	L3	CO4
	b.	Illustrate features of ACID properties with the help of example.	10 Marks	L2	CO4

Or

16.	a.	With a neat diagram explain transition diagram of a transaction	10 Marks	L3	CO4
	b.	Illustrate why concurrency control is required in a concurrent transaction.	10Marks	L3	CO4

17.	a.	Explain Armstrong inference rules with examples.	10Marks	L2	CO3
	b.	Describe Temporal databases in detail.	10 Marks	L2	CO4

Or

18.	a.	Illustrate Insertion and Updation Anomalies with the help of examples.	10 Marks	L2	CO3
	b.	Explain Spatial databases in detail.	10 Marks	L2	CO4

***** **BEST WISHES** *****