JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

Make-up Examination-Nov-2025

COURSE CODE (CREDITS): 25B11CI313(3) MAX. MARKS: 25

COURSE NAME: DATABASE MANAGEMENT SYSTEMS

COURSE INSTRUCTORS: {Pardeep, Ekta, Amol, Pankaj, Nitika, Gaurav} MAX. TIME: 1 Hour 30 Minutes

Note: Note: *(a) All questions are compulsory.*

(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

<table>
<tr><th>Q.No</th><th>Question</th><th>CO</th><th>Marks</th></tr>
<tr><td>Q1</td><td>Consider the employee relational schema given as under:
<table>
<tr><td>E-No</td><td>E-Name</td><td>E-Department</td></tr>
<tr><td>1</td><td>Ram</td><td>CSE, IT</td></tr>
<tr><td>2</td><td>Shyam</td><td>ECE</td></tr>
<tr><td>3</td><td>Sita</td><td>CSE, CE</td></tr>
</table>
What is the highest normal form of the given relation? Convert the given student relation into its next immediate normal form? What would be the primary key in your converted relation?</td><td>2</td><td>3</td></tr>
<tr><td>Q2</td><td>Consider the relation R(A,B,C,D,E) and functional dependency set F:{ A→B, B→ C, C→ D, D→E}.How many total number of super keys exists in the given relation? Also find out the candidate keys in the given Relation R.</td><td>3</td><td>5</td></tr>
<tr><td>Q3</td><td>Consider the relation R(A,B,C,D,E) and functional dependency set F:{ A→BCD, B→ AE, BC→ AED, D→E, C→DE}. Let the back end engineer decompose R into R1(AB), R2 (BC) and R3 (CSE). Check the decomposition for dependency preserving and lossless join.</td><td>4</td><td>7</td></tr>
<tr><td>Q4</td><td>Consider student and employee entity sets given as under
Student:
<table>
<tr><td>Roll-No</td><td>Name</td><td>Address</td></tr>
<tr><td>1</td><td>A</td><td>Delhi</td></tr>
<tr><td>2</td><td>B</td><td>Mumbai</td></tr>
<tr><td>3</td><td>A</td><td>Chandigarh</td></tr>
</table>
Course :
<table>
<tr><td>Emp_No</td><td>Name</td><td>Roll_No</td></tr>
<tr><td>C1</td><td>DBMS</td><td>1</td></tr>
<tr><td>C2</td><td>Networks</td><td>2</td></tr>
</table>
a. Insertion of tuple “1,K,Waknaghat” in Student table.
b. Insertion of the tuple “C3, Networks, 4”in Course table.</td><td>2</td><td>6</td></tr>
</table>

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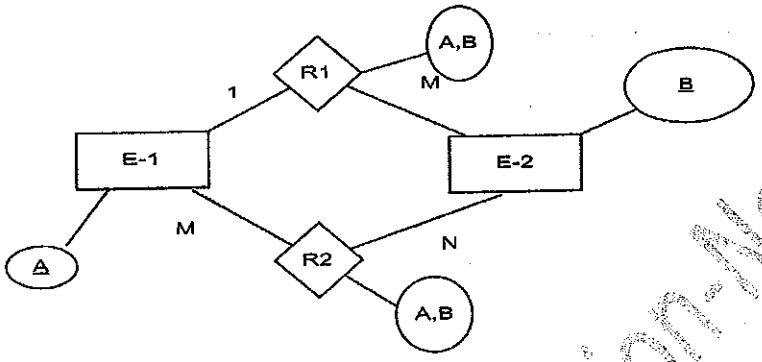
	c. Deletion of tuple "2,B,Mumbai" from table Student table d. Deletion of tuple "C2,Networks, 2" from Course table e. Updation of 2nd tuple in student table f. Updation in the address attribute of Roll_No 3 in Student table		
Q5	Consider the two schema E-1(A) & E-2 (B) and relationship schema R1 & R2. The Entity Relationship diagram is given as under:  a. What would be the primary key in R1 and R2 relationships sets? b. What is the minimum number of tables required to represent this ER diagram into relational model? c. Write the relation names in your result of part b.	1	4