

Comp DBMIS
Extra

30/05/2022

<p align="center">K. J. Somaiya Institute of Engineering and Information Technology, Sion, Mumbai-22 (Autonomous College Affiliated to University of Mumbai) End Semester Exam April - May 2022 (B.Tech.) Program: Computer Engineering Examination: SY Semester: IV Course Code: 1UCEC403 and Course Name: Database Management system Duration: 03 Hours Max. Marks: 60</p>				
<p>Instructions: (1) All questions are compulsory. (2) Draw neat diagrams wherever applicable. (3) Assume suitable data, if necessary.</p>				
		Max. Marks	CO	BT level
Q 1.	Solve any six questions out of eight:	12		
i)	What is data abstraction give suitable example?	2	CO1	U
ii)	Draw an ER diagram showing total and partial participation	2	CO2	U
iii)	How to convert one-to-many and many-to-many cardinality into schema model	2	CO3	U
iv)	Write the relational algebra queries for Select the employee names who are getting salary between 50,000 to 80,000.	2	CO3	Ap
v)	What are different integrity constraints? Explain anyone.	2	CO4	U
vi)	Define 1NF explain with one example.	2	CO5	U
vii)	What do you mean by serial and non-serial schedule?	2	CO6	U
viii)	Define Consistency property of Transaction with example.	2	CO6	U
Q.2	Solve any four questions out of six.	16		
i)	Explain Data independence with suitable labeled diagram and examples.	4	CO1	U
ii)	Draw an ER diagram. Classroom has no. of benches. Each bench has its unique no., width, height, length and capacity. It is made up with different material. Bench must be located in the classroom. Classroom may or may not have benches. Where the	4	CO2	Ap

	bench placed in the particular CR is recorded.																					
iii)	<p>Consider the following relation for the database that keeps track of student enrolment in courses and books issued for each course.</p> <p>Student(ssn,name,subject,DOB) Course(course_id,name,dept) Book_issued(course_id,semester,ISBN) Enroll(ssn,course_id,semester,grade) Text(ISBN,Title,Publisher,Author)</p> <p>Solve the following relational algebra queries: a. Find all student details registered for course id 10. b. Find various book titles and authors for semester higher than 3.</p>	4	CO3	Ap																		
iv)	Write 4 SQL queries based on Data control commands	4	CO4	U																		
v)	What conditions should be satisfied to check that given relation is in 3NF, explain with example.	4	CO5	U																		
vi)	<p>Prove that following schedule is conflict serializable or not.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>T1</th> <th>T2</th> </tr> </thead> <tbody> <tr> <td>R(A)</td> <td></td> </tr> <tr> <td>W(A)</td> <td></td> </tr> <tr> <td></td> <td>R(A)</td> </tr> <tr> <td></td> <td>W(A)</td> </tr> <tr> <td>R(B)</td> <td></td> </tr> <tr> <td>W(B)</td> <td></td> </tr> <tr> <td></td> <td>R(B)</td> </tr> <tr> <td></td> <td>W(B)</td> </tr> </tbody> </table>	T1	T2	R(A)		W(A)			R(A)		W(A)	R(B)		W(B)			R(B)		W(B)	4	CO6	Ap
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Q.3	Solve any two questions out of three.	16																				
i)	Define deadlock. Explain deadlock prevention strategies with examples.	8	CO6	U																		
ii)	<p>For the following relation schema: employee(employee-name, street, city) works(employee-name, company-name, salary) company(company-name, city) Write SQL queries for the following: a) Find the names, street address and cities of residence for all employees who work for 'Axis Bank' and earn between 30000 and 50000.</p>	8	CO4	Ap																		

	<p>b) Find the names of all employees in the database who live in the same cities as the companies for which they work.</p> <p>c) Find the highest paid employee.</p> <p>d) Update salary of all employees 5% raise in their salary.</p> <p>e) Find the name of the company that has the smallest payroll.</p>			
iii)	Explain types of functional dependency with examples.	8	CO5	U
Q.4	Solve any two questions out of three.	16		
i)	Construct an EER diagram for a car insurance company whose customers own one or more cars each. Each car has associated with it zero to any number of recorded accidents. Each insurance policy covers one or more cars and has one or more premium payments associated with it. Premium payments can be of two types online or offline. Each payment is for a particular period of time and has an associated due date, and the date when the payment was received. (Add specialization wherever required)	8	CO2	Ap
ii)	Describe the all mapping rules of conversion of EER to relational schema by considering suitable examples.	8	CO3	U
iii)	Explain the concept of Two-Phase locking protocol with example.	8	CO6	U