



School of Computer Science and Engineering

Fall Semester 2023-24 UG Seniors (B.Tech 2021 Batch)

Continuous Assessment Test - 1

SLOT: A1+TA1 & A2+TA2

Programme Name & Branch: B.Tech CSE and Specializations

Course Name & code: Database Systems & BCSE302L

Class Number (s): Common question paper for B.Tech 2021 batch

Exam Duration: 90 Min.

Maximum Marks: 50 Marks

Answer ALL Questions (10\*5 = 50 marks)

Q.No.	Question	Max Marks
1. a)	Distinguish the main characteristics of database approach from the much older approach of managing data with traditional file processing system.	5
b)	Assume that you are developing a web application which has to hold a huge volume of data and should be accessed in a secured and fast manner to perform several operations concurrently without any conflicts. Determine the suitable architecture that is applicable for the given scenario and discuss in detail.	5
2.	Discuss various component modules of a DBMS and their interactions with a neat diagram.	10
3.	<p>Depict the given ER model to relational schema by following appropriate mapping steps.</p>	10

4.

Justify your answer for the following questions with appropriate examples.

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- i) Is it mandatory for a foreign key to be a primary key in another table?
- ii) Can foreign key values be null?
- iii) After enforcing foreign key constraint using on delete cascade rule, is it possible to delete a record in the child relation whose foreign key value is NOT NULL before deleting the corresponding primary key record in the parent relation?
- iv) Can foreign keys have duplicate values?
- v) Can there exist more than one foreign key in a relation?

5.

Consider the pet health history report table given below and normalize it to 3NF.

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Pet id	Pet name	Pet type	Pet age	Owner	Visit date	Procedure number	Procedure name
246	Rover	DOG	12	Sam Cock	Jan 13/2023	01	Rabies Vaccination
					Mar 27/2023	10	Examine and Treat Wound
					Apr 02/2023	05	Heart Worm Test
298	Spot	Dog	2	Terry Kim	Jan 21/2023	08	Tetanus Vaccination
					Mar 10/2023	05	Heart Worm Test
341	Morris	CAT	4	Sam Cook	Jan 23/2023	01	Rabies Vaccination
					Jan 13/2023	01	Rabies Vaccination
519	Tweedy	Bird	2	Terry Kim	Apr 30/2023	20	Annual Check up
					Apr 30/2023	12	Eye Wash