



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.

- 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?

10

5.

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

10

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