SEMESTER END EXAMINATION, APRIL-MAY, 2025

Course Name: - B Tech **Semester:- IV**

Paper Name: - Database Management System **Paper Code:- TCS 403**

Time - 3 Hrs + 20 minutes per hour extra time for V.I. & examinees with writer. **Max Marks-70**

Additional 30 Minutes for Mid-Test.

समय– 3 घण्टे + 20 मिनट प्रति घंटे अतिरिक्त–दृष्टिबाधित एवं सह लेखक परीक्षार्थियों के लिए। अधिकतम अंक–70

30 मिनट अतिरिक्त मिड–टेस्ट के लिए।

Instructions:

- The question paper consists of three sections namely A, B, C. All sections are compulsory.
- Section A- Each question carries **3 mark. All questions are compulsory.**
- Section B- Answer any **5 out of 7** given questions. Each question carries **7 marks.**
- Section C- Answer any **2 out of 3** given questions. Each question carries **10 marks.**
- Section D- Each question carries **02 mark.** All questions are compulsory.

Section – A (खण्ड–अ)

Objective Questions(वस्तुनिष्ठ प्रशन)

1. Answer all the following questions. **5x3 =15**

निम्नलिखित सभी प्रश्न अनिवार्य हैं।

i) Which of the following command is not used to change data in table?

a) INSERT
b) UPDATE
c) DELETE
d) TRUNCATE

ii) What does the rows of a relation is known as –

a) Tuple
b) Attribute
c) Relationship
d) None of the above

iii) Which normal form leads with the multivalued dependency

a) 1NF
b) 2NF
c) 3NF
d) 4NF

iv) Which of the following allows to uniquely identify a tuple

a) Key
b) Trivial dependency
c) Non trivial dependency
d) None of the above

v) Which is the full form of DML.

a) Data Definition Language
b) Data Ministration Language
c) Data Manipulation Language
d) Data Mingle Language

Section – B (खण्ड–ब)

Short Answer Questions (लघुउत्तरीय प्रश्न)

2. Answer any five of the following questions. **5x7=35**
निम्नलिखित में से किन्हीं पाँच प्रश्नों के उत्तर दें।

i. What is E-R Diagram? Give an E-R Diagram of a Library Management System explaining each terms of it.

ii. What is a key attribute? Explain Candidate key, Super key with an example. Determine candidate and super keys for the following relation R(ABCD) = A->B, B->C, C->D

iii. What are the various terms of E-R Diagram? What are the pictorial representation of each one of it. What are the various types of attributes? Explain

iv. What is strong and weak entity set? Explain with example. What is identifying relationship?

v. What are the ACID properties of transaction. Explain with clarity. Give the definition of transaction.

vi. What are the various relational algebra expressions. Explain each one of them.

vii. What are the differences between DDL, DML. Explain with example

Section – C (खण्ड–स)

Descriptive Questions (विवरणात्मक प्रश्न)

3. Answer any two of the following question. **2x10=20**
निम्नलिखित में से किन्हीं दो प्रश्नों के उत्तर दें।

i) Analyse the following schedule working on the data items A, and B. find out the schedule is conflict serializable or not. And also discuss about its view serializability .

T_1	T_2
R(A)	
	W(A)
W(B)	
	W(B)

ii) What is Data abstraction. Explain Each level of abstraction in a brief manner. Also explain the concept of data independence along with it.

iii) How closure property is applied to help with the finding of keys in a relation. Explain the concept of 1NF, 2NF, 3NF, BCNF, which type of normalized table is used for which type of operations?

SEMESTER END EXAMINATION, APRIL-MAY, 2025

Mid-Test

- **Course Name:- B. Tech** — **Semester:- IVth**
  Paper Name:- Database Management System — **Paper Code TCS 403**
- Time - 30 minutes. — Max Marks-20

All questions are compulsory. 2×10=20
सभी प्रश्न अनिवार्य हैं।

Objective Questions.
बहुविकल्पीय प्रश्न।

1. Which normalization form is based on the transitive dependency?
   a) 1NF
   b) 2NF
   c) 3NF
   d) BCNF
2. Which of the lowest level of abstraction shows that how the data is physically stored?
   a) Logical
   b) Conceptual
   c) Physical
   d) None of the above

3. Which of the following can replace the below query?

```
SELECT name, course_id
FROM instructor, teaches
WHERE instructor_ID= teaches_ID;
```

A) Select name, course_id from instructor natural join teaches;
B) Select name,course_id from teaches,instructor where instructor_id=course_id;
C) Select name, course_id from instructor;
D) Select course_id from instructor join teaches;

4. What is DBMS?
   A) Collection of many programs to access data
   B) Collection of interrelated data
   C) Collection of commands
   D) ALL
5. Which of the following is a command of DDL?
   A) Alter
   B) Delete
   C) Create
   D) All of the above
6. Which of the following is known as minimal super key?
   A) Primary key
   B) Candidate key
   C) Foreign key
   D) None

7. Which of the following is the full form of DDL?
   A) Data definition language
   B) Data derivation language
   C) Dynamic data language
   D) Detailed data language
8. Which of the following is the full form of TCL?
   A) Ternary control language
   B) Transaction control language
   C) Transaction central language
   D) Transmission control language
9. Which of the following is the property of transaction that protects data from system failure?
   E) Atomicity
   F) Isolation
   G) Durability
   H) Consistency
10. Which of the following SQL command is used for removing (or deleting) a relation form the database?
   A) Drop
   B) Delete
   C) Rollback
   D) Remove

.....