

Writing anything except roll number on question paper will be deemed as an act of indulging in unfair means and action shall be taken as per rules.

4E020521	Roll No.:	Total No. of Pages: 3
	4E020521	
	B. Tech. IV Semester End-Term Examination (Main), June-2022	
	Branch: Computer Science & Engineering 4CS4-05: Database Management System	

Time: 3 Hours

Maximum Marks: 105

Instructions to Candidates:

The question paper is divided in three parts A, B & C.

- (i) **Part-A:** 7 Basics/Fundamentals related questions (without choice).
- (ii) **Part-B:** 5 Numerical/Analytical questions (with internal choice i.e. attempt one question either A or B from each question).
- (iii) **Part-C:** 5 Descriptive/Analytical/Problem Solving/Design questions (attempt any 3 out of 5).

Schematic diagrams must be shown wherever necessary. Any data you feel missing may suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly. Use of following supporting material is permitted during examination. (Mentioned in form No. 205).

1. _____ Nil _____

2. _____ Nil _____

PART-A

(Basics/Fundamentals related questions)

All questions are compulsory

- Q.1** (a) Describe the ACID properties of transaction. [3]
- (b) Describe the role of Database Administrator (DBA). [3]
- (c) What is the difference between Trigger and Stored Procedure? [3]
- (d) What are the three types of anomalies? Explain with suitable examples. [3]
- (e) What is serializability? Explain with suitable example. [3]
- (f) Describe the features of E-R Models. [3]
- (g) What is the need of schema refinement and Normal Forms? [3]

PART-B

(Numerical/Analytical questions)

- Q.2** (A) Explain any four Codd's Rules/Laws of RDBMS. [6]
1NF, 2NF, 3NF, 4NF
OR
- (B) Explain grant and revoke command with syntax and example. [6]
- Q.3** (A) Explain aggregate function with syntax and example. [6]

OR

- (B) Write and explain the syntax for creating and dropping synonyms with an example. [6]

- Q.4 (A) Draw ER diagram for Hospital Management System [6]
(Use DOCTOR, PATIENT, HOSPITAL and MEDICAL_RECORD Entity).
Identify Primary Key and Foreign Key.

OR

- (B) Write SQL query for following consider table: [6]
EMP(empno, deptno, ename, salary, Designation, joiningdate, DOB, city)
i) Display employees name and number in an increasing order of salary
ii) Display employee name and employee number dept wise
iii) Display total salary of all employee
iv) Display number of employees dept wise
v) Display employee name having experience more than 3 years
vi) Display employee name starting with "S" and working in deptno 1002

- Q.5 (A) Explain ALTER command. Demonstrate with any two options. [6]

OR

- (B) Explain multivalued dependencies with example. [6]

- Q.6 (A) Define Normalization and state three advantages of normalization. [6]

OR

- (B) What is the difference between Conflict and view Serializability? Explain testing for serializability. [6]

PART-C

(Descriptive/Analytical/Problem Solving/Design questions)
(attempt any 3 out of 5) (Q.7 to Q.11)

- Q.7 What are views? Explain how views are different from tables. [18]

- Q.8 (i) What are the disadvantages of file processing systems? [6]
(ii) What is data independence? Explain the difference between physical and logical data independence. [6]
(iii) What is a relationship and what are their different types? [6]

- Q.9 (i) How candidate key is different from super key? [10]
(ii) Write short notes on: [8]
(a) Data manipulation language
(b) Derived attribute

- Q.10** Consider the following relations: **[18]**
S (S#, SNAME, STATUS, CITY)
SP (S#, P#, QTY)
P (P#, PNAME, COLOR, WEIGHT, CITY)
Give an expression in SQL for each of queries below:
(i) Get supplier names for supplier who supply at least one red part.
(ii) Get supplier names for supplier who do not supply part P2.
- Q.11** Discuss two-phase locking protocol. Also discuss the number of variations of two-phase locking with their merits and demerits. **[18]**

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