

Please check that this question paper contains 9 questions and 2 printed pages within first ten minutes.

[Total No. of Questions: 09]

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Uni. Roll No. ....

MORNING

Program: B.Tech. (Batch 2018 onward)

Semester: 4<sup>th</sup>

Name of Subject: Database Management System

Subject Code: PCIT-104

Paper ID: 16233

Scientific calculator is Not Allowed

20 SEP 2022

**Detail of allowed codes/charts/tables etc. Nil**

**Time Allowed: 03 Hours**

**Max. Marks: 60**

**NOTE:**

- 1) Parts A and B are compulsory
- 2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
- 3) Any missing data may be assumed appropriately

**Part – A**

**[Marks: 02 each]**

**Q1.**

- a) Write the merits of database compared to a file system.
- b) What is data dictionary used for?
- c) How many timestamps are associated in validation based protocols?
- d) What are the fields used in log based recovery?
- e) List the four types of NoSQL Database.
- f) Distinguish between database and data marts.

**Part – B**

**[Marks: 04 each]**

- Q2.** Define foreign key? How does it play a role in the join operation?
- Q3.** Give example of following relationships : a. Many-to-One b. One-to-One c. One-to-Many d. Many-to-Many
- Q4.** What is significance of atomicity and consistency? Give an example of each.

- Q5. Let E1 and E2 be two entities in an E/R diagram with simple single-valued attributes. R1 and R2 are two relationships between E1 and E2, where R1 is one-to-many and R2 is many-to-many. R1 and R2 do not have any attributes of their own. Calculate the minimum number of tables required to represent this situation in the relational model?
- Q6. Suppose that there is a database system that never fails. Analyze whether a recovery manager is required for this system.
- Q7. Elaborate in detail the various steps of data mining.

**Part – C****[Marks: 12 each]**

- Q8. Differentiate between 1NF and 2NF. Design any 1NF table and convert it into 2NF specifying the required rules

OR

Create a table called "Class" that contains six columns: classID, Branch, LastName, FirstName, Address, and City. Perform a not null constraint on the class table and also create a primary key on the same table.

- Q9. Consider the following tables: Employee (Emp\_no, Name, Emp\_city) Company (Emp\_no, Company\_name, Salary)
- Write a SQL query to display Employee name and company name.
  - ii. Write a SQL query to display employee name, employee city, company name and salary of all the employees whose salary > 10000
  - iii. Write a query to display all the employees working in 'XYZ' company.

OR

Why Google and Facebook switched to NoSQL? Discuss as a Case Study.

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