Code No: R1631054 **R16** SET - 1

III B. Tech I Semester Supplementary Examinations, October/November - 2020

DATA BASE MANAGEMENT SYSTEMS

(Common to Computer Science and Engineering, Information Technology)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
2. Answer **ALL** the question in **Part-A**
3. Answer any **FOUR** Questions from **Part-B**

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PART –A (14 Marks)

1. a) Write the importance of Logical data independence. [2M]
   b) What is an Entity Relationship diagram and why it is useful? [2M]
   c) Why NULL values are needed in databases? [2M]
   d) What do you mean by sound and completeness of inference rules? [3M]
   e) When we say a schedule is recoverable. [3M]
   f) List out various data structures used for indexing purposes in database. [2M]

PART –B (56 Marks)

2. a) What is a Database model? List out various database models and explain any two of them. [7M]
   b) Explain the difference between external, logical and physical level schemas. How are these different schema layers related to the concepts of logical and physical data independence? [7M]

3. a) What is JOIN operator in DBMS? Explain all the variations of the JOIN operation in relational algebra with a suitable example. [8M]
   b) Differentiate between Procedural and Declarative Query languages with suitable examples. [6M]

4. a) Discuss GROUPBY and HAVING clauses with an example. And also give the constraints related to their usage. [4M]
   b) Consider the following relation schema: [10M]
   Student_Enrollment(ID,NAME,CGPA)
   Write triggers to manage the CGPA attribute of new students.
   If the inserted tuple has a ***non-null values*** for CGPA then don't permit the insert unless the grade is between 9 and 12.
   If the inserted tuple has a ***null values*** for CGPA then change it to 9.

5. a) What is dependency preservation property for decomposition? Explain why it is important. [7M]
   b) Given a Relation R=(X,Y,Z) and Functional Dependencies are [7M]
   $F=\{ \{X,Y\}\rightarrow\{Z\},\ \{Z\}\rightarrow\{X\} \}$
   Determine all Candidate keys of R and the normal form of R with proper explanation.

6. a) Explain various anomalies that arise due to interleaved execution of transactions with suitable examples. [7M]
   b) Explain the Two-Phase Locking protocol and its variants. [7M]

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7. a) How the organization of a file helps us to reduce the complexities involved in executing various File operations like search, insert and update? Explain. [5M]
   b) Write short notes on: [9M]
   i) Primary index ii) Clustered index iii) Secondary index.

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