Code No: 134AP

R16

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech II Year II Semester Examinations, November/December - 2020
DATABASE MANAGEMENT SYSTEMS
(Common to CSE, IT)

Time: 2 hours **Max. Marks: 75**

Answer any Five Questions
All Questions Carry Equal Marks
- - -

1. Explain how to build an ER model for university with entities department, instructor, student, and class. Instructors and students belong to one department only. Instructors and students related to a class with many to many relations. Assume suitable attributes. Explain how the ER model can be translated into relations. [15]

2.a) Describe the set operations of relational algebra, including union (U), set difference (-), and cross-product (X). For each, what can you say about the cardinality of their input and output tables.
b) Explain the Triggers. [10+5]

3.a) Define Functional Dependency. State and prove Arm strong's inference rules.
b) Explain 2NF and 3NF Normal forms with examples. [8+7]

4.a) Discus the Remote Backup systems.
b) Explain the time stamp based protocols. [7+8]

5.a) How is data organized in a hash-based index? When would you use a hash-based index?
b) Explain the difference between the hash indexes and B+ tree indexes. [7+8]

6.a) Give a brief note on the History of Database Systems.
b) Discuss the Database Users and Administrators. [7+8]

7.a) Define the relation. Differentiate between the relational schema and a relation instance.
b) Give a tuple relational calculus expression to find the maximum value in relation r (A). [8+7]

8. List and explain the Properties of Decompositions. [15]

---ooOoo---