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Total Number of Pages: 2

B.Tech
BECS2208

3rd Semester Back Examination 2016-17
DATABASE MANAGEMENT SYSTEM

BRANCH: MECH

Time: 3 Hours

Max Marks: 70

Q.CODE: Y529

Answer Question No.1 which is compulsory and any five from the rest.
The figures in the right hand margin indicate marks.

Q1 Answer the following questions: (2 x 10)

- a) Differentiate between data definition language and data storage language with proper examples.
- b) Define Data Independence in Database Management System.
- c) How Relational Calculus is different from Relational Algebra?
- d) Define Referential integrity with example
- e) What is the role of the DBA
- f) Define transaction with ACID Properties.
- g) In which layer E_R Model is used?
- h) Define Division operation with Relational Algebra.
- i) What is the role of the disk space manager?
- j) Define Security in Database

Q2 a) Explain the database architecture with different layers (5)
b) What is database life cycle? Discuss in details (5)

Q3 a) Discuss different forms of data models (5)
b) Compare between relational Algebra and relational calculus with examples. (5)

Q4 Construct an ER diagram for a hospital with a set of patients and a set of medical doctors. Associate with each patient a log of the various tests and examinations conducted. Then generate different tables from it. Treats are relation between doctor and patients. Logs are maintained with patients and tests. (10)

The attributes of patients, doctors and tests are as follow :

Doctors:

- Doctor ID as key attributes
- Name
- Address composite attributes
- Qualification multi values

- Specialization multi values
- Patient:
- Patient ID as key attributes
 - Types
 - Details

- Test
- Types as key attributes
 - Description

- Q5** a) Describe the storage structure of B+ tree files and their access method with examples. **(5)**
- b) Define join dependencies and multivalued dependencies. **(5)**
- Q6** What is set operator? Discuss different form of set operator with example using relational algebra and relational calculus. **(10)**
- Q7** a) Define Cartesian product and division operator and compare between them. **(5)**
- b) Define and Compare between functional dependency and multi-valued functional dependency with examples. **(5)**
- Q8** **Write short notes on :** **(5 x 2)**
- a) Recovery of data
- b) Normalization.