

Special Examinations, 2012
Relational Data Base Management System
Full Marks: 70
Time: 3 Hours

Answer six questions including question No.1 which is compulsory
Figures in the right hand margin indicate marks

Q 1. Answer the following questions (2x10= 20)

- i. Write the different environment of database system ?
- ii. Distinguish between logical and physical data independence ?
- iii. Distinguish with example between DML and DDL .
- iv. Distinguish between primary key and candidate key ?
- v. What is meant by relational model ?
- vi. What is meant by controlled redundancy in terms of DBMS ?
- vii. Basic difference between relational model and object oriented model .
- viii. Explain any four primitive operations in relational algebra .
- ix. What is meant by functional dependency?
- x. What is the difference between schema subschema and instances ?

Q2a) Draw and explain the three level architecture of database system . Illustrate the difference between three levels of data abstraction , schema and instances . 5

b) Design the E-R diagram for your University specifying aggregation, generalization or specialization hierarchy . 5

Q3 a) Define hashing ? Discuss various hashing technique ? 5

b) Define the term data model ? Give a comparative statement among relational , hierarchical and network data model . 5

Q 4a) What is meant by dead lock ? When does it occur ? how is it detected in centralized database system ? How to avoid deadlock ? 5

b) Explain the rules related to entity integrity and referential integrity . 5

Q 5 a) Explain with examples how the tuple relational calculus formulae can be derived? 5

b) What is meant by normalization and its importance ? Write any five rules of Codd's 12 rule . 5

Q6a) Explain Join dependency and fifth normal form with suitable example . 5

b) State by giving examples the conditions that are necessary for a relation to be in 1 NF, 2 NF, 3 NF and BCNF . 5

Q7 a) What is meant by Query processing ? Discuss various query processing strategies and query optimization methods . 5

b) What are ACID properties of transaction ? Discuss advantages and disadvantages of distributed locking methods . 5



Q8 . Write notes on : (Any two) 2 X 5 = 10

- a) Time stamp based protocol.
- b) Characteristics of SQL .
- c) Database recovery .