

FACULTY OF INFORMATICS**M.C.A. II - Year I – Semester (Main) Examination, January 2015****Subject: Data base Management Systems****Time: 3 hours****Max. Marks: 80****Note: Answer ONE question from each unit. All questions carry equal marks.****UNIT – I**

- 1 a) Discuss the additional features of ER with necessary examples. 8
 b) What are the advantages of DBMS over FMS? Explain. 8

OR

- 2 a) Define functional dependency. Given relation R with attributes A, B, C and D and functional dependencies $A \rightarrow BC$, $B \rightarrow C$, $A \rightarrow B$, $AB \rightarrow C$, $AC \rightarrow D$ computer an irreducible set FDs that is equivalent to the give set. 7
 b) What is normalization? Explain 1 NF, 2 NF, 3 NF, with suitable examples. 9

UNIT – II

- 3 a) List and discuss various integrity constraints in SQL. 7
 b) Consider the following relations :
 Employee (emp_no, emp_name, designation, DOJ, salary, dept_no)
 Department (dept_id, dept_name)
 Write SQL Queries for the following :
 i) List the employees whose annual salary is more than 800000.
 ii) List all the employees who earn more than the lowest in dept_id 20.
 iii) Display all those departments in which the no. of employees are more than 4. 9

OR

- 4 a) Discuss the syntax and semantics of Tuple relational calculus with examples. 11
 b) Explain the use of Division operator in relational algebra with example. 5

UNIT – III

- 5 a) Compare and contrast various file organizations. 9
 b) Differentiate between extendable hashing and linear hashing. 7

OR

- 6 a) Explain in detail about indexed sequential access method. 7
 b) Discuss the advantages of B+ trees. 4
 c) Explain briefly about static hashing. 5

UNIT – IV

- 7 a) Explain in detail about any 2 techniques of concurrency control without locking 11
 b) Explain about strict two-phase locking protocol. 5

OR

- 8 Explain the following : 6 + 5 + 5
 a) ACID properties b) Deadlocks in concurrency control c) Conflict serializability

UNIT - V

- 9 a) How the transaction will be aborted when the system is restarted after a crash? Explain with an example. 6
 b) Explain in detail about ARIES 10

OR

- 10 Write short notes on
 a) Role of the DBA with respect to security 5
 b) Grant and Revoke on views and integrity constraints 6
 c) Multilevel relations and polyinstantiation 5
