

Total No. of Questions : 5

Total No. of Printed Pages : 3

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EKS-202

B.E. III Semester (CGPA) CSE Exam. 2017

DATABASE MANAGEMENT SYSTEM

Paper : CS-304

Time Allowed : Three Hours

Maximum Marks : 60

Note: Attempt all questions. All questions carry equal marks.

- Q.1. a) What is DBMS and what are component of DBMS? What are the advantages of DBMS over file oriented approach. 6
- b) Explain the concept of physical data independence and its importance in database. 6
- OR
- a) Differentiate between two tier and three tier client/server architecture. 6
- b) What is the difference between procedural DML and non procedural DML. 6
- Q.2. a) Draw an ER diagram for a small marketing company database. Assume suitable data. 6
- b) What is entity and attribute? Explain the entity types. 6
- OR
- a) Explain about integrity constraints. 6
- b) Explain the various data models briefly with an example. 6

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- Q.3. a) Differentiate between relational calculus and Relational algebra? 6
- b) Explain the join operator, its relevance and its various types. 6
- OR
- a) Discuss the different techniques for optimising the queries. 6
- b) Consider the relations: 6
- City (city-name, state)
- Hotel (name, address)
- City-hotel (hotel-name, city-name, owner) answer the following queries in relational algebra:
- i) Find the names and address of hotels in Agra.
- ii) List the name of cities which have no hotel.
- Q.4. a) Prove that a relation which is in 4NF must be in BCNF. 6
- b) Explain non loss decomposition and functional dependencies with example. 6
- OR
- a) Consider the universal relation 6
- $R = \{A, B, C, D, E, F, G, H, I\}$
- and the set of functional dependencies
- $F = \{(A, B) \rightarrow C, A \rightarrow (D, E) B \rightarrow F, F \rightarrow (G, H), D \rightarrow (I, J)\}$
- What is the key for R? Decompose R into 2NF, then 3NF relations.
- b) Explain 3NF and BCNF with suitable example. 6

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EKS-202

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- Q.5. a) What is distributed database? Explain its security mechanism. 6
b) State and explain the three concurrency problems? 6

OR

- a) What is transaction in database. Discuss properties of transaction? 6
b) Explain immediate update and deferred update of recovery techniques. 6

