

Question Paper

Exam Date & Time: 24-Apr-2018 (09:30 AM - 12:30 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

INTERNATIONAL CENTRE FOR APPLIED SCIENCES

IV SEMESTER B.S. (ENGG.)

END - SEMESTER THEORY EXAMINATIONS APRIL - 2018

DATE: 24 APRIL 2018

TIME: 9:30 AM TO 12:30 PM

Database Management Systems [CS 246]

Marks: 100

Duration: 180 mins.

Answer 5 out of 8 questions.

- 1) What are the different levels of viewing data in DBMS? Explain. (7)
Which level shows the data stored?
 - A)
 - B)
 - C)
- 2) What are Primary keys, Super Keys, Candidate keys, in DBMS? Give example to narrate the same. (10)
 - A)
 - B) Consider a deposit relation and borrow relation for a bank. (10)
The schema is given by
Deposit (Customer_name, account_number, branch_name)
Borrow (Customer_name, account_number, branch_name)
(i) Using SQL, find names of all distinct branches in deposit relation.
(ii) Using SQL, find all the customers, who have an account in MIT, but no loan in MIT.
(5+5)
- 3) Given (10)
 - A) Teacher (t_name, dept, s_title)
Student (s_name, course, hall)
Study (s_title, s_name, study_level, status, marks)
(i) Create all tables, by writing them in SQL.
(ii) Using SQL, Find average marks in subject taught by Prof 'XYZ'. (5+5)
 - B) Perform Inner Join and Outer Join Operations on the above tables. (5)
 - C) What are entities , relationships and the corresponding sets for Q 3 a). (5)
- 4) Give an ER diagram for an University System, showing all relationships among entitiesThe following activities happen in the University, which have to used in the above problem: (10)
 - A) Faculty, Teaches, Student, Research, Exam.
 - B) What are the different types of relationships amongst entities? What (10)

is it's significance with respect to strong entities and weak entities?
Explain.

5) Explain the Storage Hierarchy with it's block diagram. (10)

A)

B) How does a Magnetic Disk function to store data? Show all parts involved. (5)

C) Give Data Dictionary for a database which has the following requirements: (5)

Procure Medicines, Generate Cash and Generate Revenue.

6) Given a set of functional dependencies (10)

$F = \{$

A)

$AB \rightarrow C, C \rightarrow A, BC \rightarrow D$

$ACD \rightarrow B, D \rightarrow EG, BE \rightarrow C, CG \rightarrow BD, CE \rightarrow AG$

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Find a suitable key using appropriate Functional Dependency method.

B) How is BCNF done in DBMS? Give an example. (10)

7) How are B+ trees organized, in DBMS? Perform Insertion and deletion on the same. (10)

A)

B) How are Heap File Organization and Hash File Organization done in DBMS? Is insertion and deletion of records possible by both? (10)

8) How do you find Lost Update Problem, Inconsistent read Problem, in Transaction Management? Does it lead to Phantom problem in DBMS? (10)

A)

B) Explain the methods of Serializability Test and Two Phase Locking ? (10)

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