

Question Paper



MANIPAL UNIVERSITY

**SCHOOL OF INFORMATION SCIENCES (SOIS)
FIRST SEMESTER MASTER OF ENGINEERING- ME (BIG DATA AND DATA
ANALYTICS)**

DEGREE EXAMINATION- APRIL 2017

Wednesday, 26,2017

Time :10:00AM- 1:00PM

Modern Database Management Systems [BDA 607]

Marks: 100

Duration: 180 mins.

Answer all the questions.

- 1) Discuss Cloud Data Stores and Parallel Databases and Data Stores. (10)
- 2) Write why we need Data Models? Name different types of data models? Discuss ER Model with a suitable schema example? (2+2+6) (10)
- 3) Discuss any 4 aggregation functions in relational algebra with example. (10)
- 4) I. Discuss briefly what are nested sub queries? (10)
ii. Consider a database with the following relations
loan (loan-number, branch-name, amount)
customer (customer-name, customer-street, customer-city)
depositor (customer-name, account-number)
borrower (customer-name, loan-number)
account (account-number, branch-name, balance)
branch (branch-name, branch-city, assets)
a. Write an SQL query to find the names of all customers whose street includes the substring "Main".
b. Write the nested SQL query to find all customers who have both an account and a loan at the bank.
c. Write the nested SQL query to find all customers who have a loan at the bank but do not have an

account at the
bank.
(2+2+3+3)

- 5) What are the required properties of a transaction explain them based on the following simple transaction example. Transaction to transfer 50 from account A to account B:
1.read(A)
2.A:= A - 50
3.write(A)
4.read(B)
5.B:= B + 50
6.write(B) (10)
- 6) What is a deadlock and deadlock prevention protocol? Name and discuss three Deadlock Prevention Strategies? (4+6) (10)
- 7) What is JSON? Give an example of a piece of JSON data? Name four futures of JSON? Why we go for JSON? (6+4) (10)
- 8) Explain map reduce process with neat diagrams? (10)
- 9) What is data sharding explain in detail? (10)
- 10) Discuss two stage Map-Reduce example. (10)