

Question Paper Code: 94804

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2021

Fourth Semester

Information Technology

19UIT404 – DATABASE MANAGEMENT SYSTEMS

(Regulation 2019)

Duration: 1:45 hours

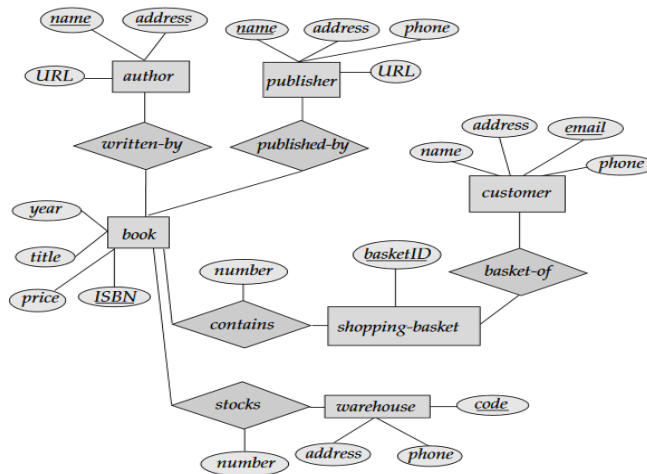
Maximum: 50 Marks

PART A (5 X 10 = 50 marks)

ANSWER ALL THE QUESTIONS

1.a.

[Understand]



Consider the E-Rdiagram in Figure above, which models an online book store.

- a) List the entity sets and their primary keys.
- b) Suppose the bookstore adds music cassettes and compact disks to its collection. The same music item may be present in cassette or compact disk format, with differing prices. Extend the E-Rdiagram to model this addition, ignoring the effect on shopping baskets.

Now extend the E-Rdiagram, using generalization, to model the case where a shopping basket may contain any combination of books, music cassettes, or compact disks..

OR

1.b. What are advantages of DBMS over traditional file based systems?

[Understand]

2.a. Consider the insurance database of Figure 1, where the primary keys are underlined. Construct the following SQL queries for this relational database.

- a) Find the total number of people who owned cars that were involved in accidents in 1989.
- b) Add a new accident to the database; assume any values for required attributes.
- c) Delete the Mazda belonging to "John Smith".

[Apply]

person(driver_id, name, address)

car(license, model, year)

accident(report_number, date, location)

owns(driver_id, license)

participated(driver_id, car, report_number, damage_amount)

Figure 1: Insurance database.

OR

2.b. Consider the following Banking database and Construct the Tuple Relational Calculus for this relational database.

[Apply]

branch (branch_name, branch_city, assets)

customer (customer_name, customer_street, customer_city)

account (account_number, branch_name, balance)

loan (loan_number, branch_name, amount)

depositor (customer_name, account_number)

borrower (customer_name, loan_number)

Figure: Banking Database

- a) Find the loan_number, branch_name, and amount for loans of over \$1200
- b) Find the loan number for each loan of an amount greater than \$1200
- c) Find the names of all customers having a loan, an account, or both at the bank
- d) Find the names of all customers who have a loan and an

account at the bank
e) Find the names of all customers having a loan at the
Perryridge branch

3.a. What is Trigger in SQL? Explain [Understand]

OR

3.b. Explain in detail about Normal forms and its types [Understand]

4.a. Define Serializability. Explain the types of serializability with
Example [Understand]

OR

4.b. Define the phases of two phase locking protocol [Understand]

5.a. Explain the different types of NoSQL databases. [Understand]

OR

5.b. Define CRUD operation in MongoDB. [Understand]