

17th Nov. 06.

- Note: (1) Question No. 1 is compulsory
(2) From Question No. 2 to Question No. 7 attempt any four questions.

Q. 1. Answer the following:

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- State the features of SQL which have made it successful in the market.
- Explain the relational database model.
- If a view is updated, is the original table updated? Under what conditions can a view not be updated?
- Explain the concept of NULL values.
- Write SQL Queries for the following:
 - Create the table RIVERS according to the description shown below.

Attribute	Data Type	Constraint
Name	Up to 20 characters long	Unique and NOT NULL
Length	Up to 4 digits	Values between 100 and 4160
Outflow	Up to 20 characters long	Required.

- Add a new column called MaxDepth to the Rivers table. Make sure that the values of this column range from 100 to 250 feet.

Q. 2. Answer the following:

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- State and Explain the Codd's 12 Rules.
- State and explain the built-in functions available in SQL2 standard
- Write SQL queries for the following:
 - Create a table 'CITY' with the following fields:

Field	Data Type / Size	Constraint
ID	Integer	Primary Key
Name	Upto 20 characters	
State	2 Characters	
Latitude	Number	
Longitude	Number	

- Create a table 'CITY' with the following fields:

Field	Data Type / Size	Constraint
ID	Integer	Foreign Key matching CITY ID
Month	Integer	Must be between 1 and 12
Temp_F	Number	Must be between -80 and 150
Rain_I	Number	Must be between 0 and 100
(ID + Month)		Primary Key

- List the temperatures for July from table DATA, lowest temperatures first, picking up city name and latitude by joining with table CITY.
- List (using subquery) the cities with year-round average temperature above 50 degrees.

Q. 3. Answer the following:

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- Explain the column check constraint in SQL2. How can it be applied to many different columns in the database?
- Explain the problems created by referential cycles on referential integrity.
- What is a deadlock? How can it be avoided? Explain various techniques used to overcome deadlocks.

Q. 4. Answer the following:

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- Explain the syntax of the SELECT statement with various clauses that can be attached to it.
- Enumerate the problems that can corrupt referential integrity of the parent / child relationships in a database.
- Write SQL statements for the following based on the tables CUSTOMER, MOVIE and INVOICE given behind (after Q 7):
 - Find the movies that cost more than 159 and also find the new cost as original cost* 15
 - Print the names and types of all the movie except horror movies
 - List the various movie types available.
 - List the mvno, title, type of movies whose stars begin with letter 'M'.
 - Determine the maximum and minimum of price. Rename the title as max_price and min_price respectively.
 - Find the number of movies in each type

Q. 5. Answer the following:

- a) What is a trigger? How are triggers used to implement referential integrity? 6
- b) What is a transaction? Why is it necessary that a transaction either be completed or completely aborted? Explain the two transaction processing statements in SQL. 6
- c) Write SQL statements for the following based on the tables CUSTOMER, MOVIE and INVOICE given (after Q 7): 8
 - i. Print the information of invoice table in the following format for all records
The Invoice No. of Customer Id. {Custid} is {Invno} and Movie No. is {Mvno}.
 - ii. Select the title, Custid, Mvno for all the movies that are issued
 - iii. Find out which customers have been issued movie number(Mvno) 9.
 - iv. Display the month (in alphabets) in which customers are supposed to return the movies

Q. 6. Answer the following:

- a) Explain the concept of Domain in SQL 2 standard. 6
- b) Explain the different types of joins in SQL. Give an example for each type. 6
- c) Write SQL statements for the following based on the tables CUSTOMER, MOVIE and INVOICE given (after Q 7): 8
 - i. Delete all the records having return date before 10th July '05
 - ii. Find out if the movie starring 'Tom Cruise' is issued to any customer and list the Custid to whom it is issued
 - iii. Find the names of customers who have been issued movie of type 'drama'.
 - iv. Find out the title of the movies that have been issued to the customer whose Fname is 'Mary'.

Q. 7. Answer the following:

- a) Explain the different database architectures. 6
- b) What are aliases? How can they be created and dropped? 6
- c) Write SQL statements for the following based on the tables CUSTOMER, MOVIE and INVOICE given below: 8
 - i. Add a column Remark of type Varchar and size 25 to the Invoice table.
 - ii. Find the names of all customers having 'a' in the second letter in their fname
 - iii. Find out the movie number which has been issued to customer whose first name is 'Ivan'.
 - iv. Display the title, Lname, Fname for customers having movie number greater than or equal to three, in the following format: The movie taken by {Fname} {Lname} is {title}.

Reference Tables for Q. 4, Q. 5, Q. 6 and Q. 7

Table: **CUSTOMER**

Attribute	Data type	Constraints
Custid	Varchar(3)	Primary key
Lname	Varchar(15)	
Fname	Varchar(15)	
Area	Varchar(2)	
Phone	Number(8)	

Table: **MOVIE**

Attribute	Data type	Constraints
Mvno	Number(2)	Primary key
Title	Varchar(25)	
Type	Varchar(10)	
Star	Varchar(25)	
Price	Number(8,2)	

Table: **INVOICE**

Attribute	Data type	Constraints
Invno	Varchar(3)	Primary key
Mvno	Number(2)	Foreign Key Movie (Mvno)
Custid	Varchar(3)	Foreign Key Customer(Custid)
Issuedate	Date	
Returndate	Date	