

Indian Institute of Information Technology Vadodara

B.Tech. (CSE&IT): Semester IV (Winter 2023)

CS204 – Database Management System

Mid-Semester Exam

Total Marks: 30

Time: 120 Minutes

Questions

1. Design a database for any one of the following scenarios. The design should smoothly inherit the majority of the database concepts discussed in the class. (10)

(Hospital, Airline, Railway, Shipping, Bus) management system

Note: The evaluation should be based on the number of concepts used and how smoothly they are incorporated into the database design.

2. Consider a database with the following relations.

USERS(USERID, UNAME, AGE, POPULARITY) - contain user details

MEMBERS(USERID, GROUPID) - associate a user with a group

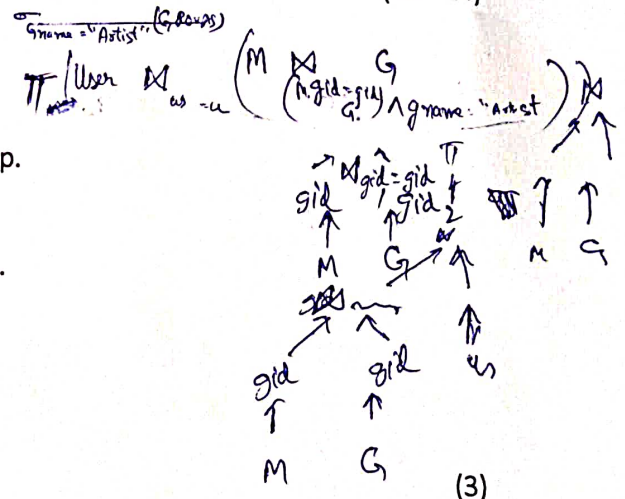
GROUPS(GROUPID, GNAME) - contain Group details (their id and name)

Customer  
Passengers  
Pilots  
Coaches  
Planes

Write the Relational algebra and SQL queries for each of the following:

(2x7=14)

- Find all the users who belong to the "Artist" group.
- Find all the Groups whose members' age is greater than 18.
- Find all the pairs of distinct users belonging to the same group.
- List all the Groups containing a user name as "Sumit".
- Find IDs of the groups that contain users "Amit" and "Shilpa".
- Finds the IDs of Users who belong to at least two groups.
- Find the users with the second highest popularity value.



3. Create an assertion that checks the following

- The age of a user must be greater than 10.
- Group id in Member relation must be present in the GroupID set of the Groups relation.

4. Create a trigger that deletes the Member records with User IDs that are deleted from the Users relation.

(3)

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301 1  
301 2  
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