1. Describe drawbacks of hierarchies and network approach.

Complex programs have to be written to answer even simple queries based on navigational record-oriented access.

2. Describe advantages of relational approach.

A great advantage of the relational model is its simple logical structure.

So it would be easier to modify in the future, easier to access data, it has a normalized language.

3. What are the three levels of ANSI/SPARC database model? Draw a diagram to illustrate the model.

The three levels are: external, conceptual and internal level.

The way users perceive the data is called the external.

The way the databases perceive the data would be the internal.

And finally the conceptual level provides de both the mapping and the desired independence between the external and internal level.

EXTERNAL

c

c

c

CONCEPTUAL

c

c

INTERNAL

4. Explain the two types of data independence.

There are two types of data independence logical and physical.

Logical is used to change the conceptual scheme without changing the external factor.

And the physical one is used to separate conceptual levels from the internal ones.

5. Using diagrams to illustrate 2-tier and 3-Tier system architecture.

2- Tier

c

Computer

Database Server

3-Tier

c

Computer

App Server

Database Server

6. What are the advantages of 3-Tier system architecture?

The need of less expensive hardware because the client is “thin”

Application maintenance is centralized with the transfer of the business logic for many end-uses into a single application server. This eliminates the concerns of software distribution that are problematic in the traditional twi-tier client-server model.

The added modularity makes it easier to modify or replace one tier without affecting the other tiers.

Load balancing is easier with the separation of the core business logic from the database functions.

7. Discuss the following database languages and their relationships • DDL • DML • Host Language • Query Language

The DDL or Data Definition Languages basically allows the user to name and describe the entities , attributes and relationships from the database to the application, but not to modify any of the values inside the database.

The DML or Data Manipulation Language does the opposite of the previous one, it allows you to modify, add or delete data.

The host language would be a coding language, such as Java, C++, C#, etc.

As to a Query language is a language that allows to do queries in the databases such as SQL.