**Q:no1**

Data

Stored representations of objects and events that have meaning and importance in the user's environment

Information

Data that have been processed in such a way as to increase the knowledge of the person who uses the data

Metadata

Data that describe the properties or characteristics of end-user data and the context of those data

Database Application

An application program (or set of related programs) that is used to perform a series of database activities (create, read, update, and delete) on behalf of database users

Data warehouse

An integrated decision support database whose content is derived from the various operational databases

Constraint

A rule that cannot be violated by database users

Database

An organized collection of logically related data

Entity

A person, a place, an object, an event, or a concept in the user environment about which the organization wishes to maintain

**Q:no 3**

**1)**

Data dependence vs data independence

Data dependence is when data description is built with the application program and if there is a change in the data there is a change in the program  
Data Independence is when data description is not built within the application program and if there is a change is a change in the data there is not a change in the program

2)

Structured vs Unstructured

Structured data is traditional data that can be retrieved and stored in a database as well as a data warehouse  
Unstructured data includes multimedia data and is stored as a part of the user's environment as objects or events

3)

Data and Information

Data is the representation of objects and events stored in a computer; number, value, variable  
Information processed data that will increase the information of the user; data is useless unless it is information

4)

Repository and Database

-Centralized location for data definition, tables, relationships, and other components of an information system  
Database is an organization data collection and all the data presented is related in some way

5)

Entity and Enterprise Data Model

An entity basic block for building data collected about a person, place, event or thing, has attributes and multiple instances  
Enterprise Data Model is the initial stage in software development and specifies the scope and content of an organizational database

6)

Datawarehouse vs ERP system

Warehouse is combining the data of one or more sources and creating a repository of data  
-ERP System integrates the operational data and all the aspects of the business such as marketing, production, sales

7)

Two Tier vs Multi Tier

Both allow for sharing amongst multiple users by storing the database and accessing the DBMS via network  
Two Tier maintains the user interface business logic and user interface in the client device  
Multi Tier maintains user interface in the client devices and the business logic on multiple server layers

8)

Systems development life cycle vs prototyping

SDLC provides the groundwork to develop an information system project; end of end process of designing, building, and delivering an IS  
Prototyping is rapid application development. With prototyping phases are executed concurrently and the cycle is repeated until it meets requirements

9)

Enterprise data model vs Conceptual data model

Initial stage of software development and it specifies the scope and general content of the organizational database  
Conceptual Data Model is a specification that is detailed and does not involve technology to give the general structure of the database. It is the output of the conceptual modeling phase and an extension of the enterprise data model

10)

Prototyping vs Agile Software Development

-Prototyping performs planning first and performs analysis, design phase repeatedly until the business system is satisfied  
-Agile Software Development is used for rapid response and rest on high involvement from knowledge customers; suitable for projects that are often changing

7. What does the term data independence mean, and why is it an important goal? Pg. 13

Data independence is the separation of data description from the application programs that use the data. It’s important because it allows organization data to change and evolve without changing the application program that use the data.

9. List five cost or risks associated with the database approach. Pg. 15

Five cost of risks associated with the database approach are New, specialized personnel, Installation, management cost, and complexity, Conversion costs, Need for explicit backup and recovery, and Organizational conflict.

11. In the three-tiered database architecture, is it possible for there to be no database on a particular tier if not, why? If yes, give an example?

13.In which of the five phases of the SDLC do database development activities occur? Pg. 18

Database development activities occur in each of the SDLC phases.

15. Explain the differences between user views, a conceptual schema, and an internal schema as different perspectives of the same database. Pg. 13, 20, 23

User views, external schema, requires users to perfume some task, it is a representation of how users view the database. Conceptual schema combines the different external views into a single, coherent, and comprehensive definition of the enterprise data. The conceptual schema is logical. Internal schema is a representation of logical schema and physical schema. The logical schema is the representation of data for a type if data management technology and the physical schema describes how data are to be represented and stored in secondary storage using a particular DBMS.

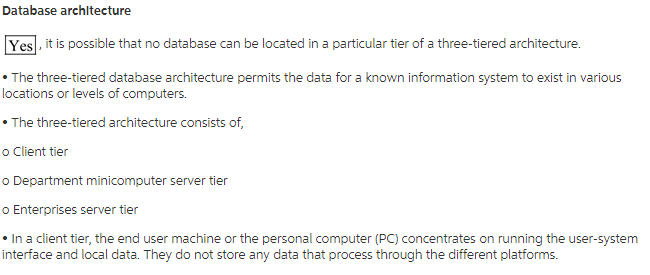
17. What phase(s) of the database development process do the activities that Chris performs in the following sub-section correspond to? Pg. 31, 22

Project planning, Analyzing database requirements, Designing the database, Using the database, administering the database.

19. As the ability to handle large amounts of data improves, describe the three businesses areas where these very large databases are being used effectively.

Three business areas where very large databases are being used effectively are online shopping, banking/finance, and medical industries.

**Q:no 11**

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**Chapter 2**

Six general guidelines for naming data objects in a data model:

a. Data names should relate to business, not technical characteristics.

b. Data names should be meaningful, almost to the point of being self-documenting.

c. Data names should be unique from the name used for every other distinct data object.

d. Data names should be readable, so the name is structured as the concept would most naturally be said.

e. Data names should be composed of words taken from an approved list.

F .Data names should be repeatable, meaning that different people or the same person at different times should develop exactly or almost the same name.

8. Four criteria for selecting identifiers for entities:

a. Choose an identifier that will not change its value over the life of each instance of the entity type.

b. Choose an identifier such that for each instance of the entity the attribute is guaranteed to have valid values and not be null (or unknown).

c. Avoid the use of so-called intelligent identifiers (or keys), whose structure indicates classifications, locations, and so on.

d. Consider substituting single-attribute surrogate identifiers for large composite identifiers.

9. Why must some identifiers be composite rather than simple?

An identifier attribute is an attribute (or combination of attributes) whose value distinguishes individual instances of an entity type. Often, a simple attribute will not be unique for all instances of an entity type (e.g., FlightNumber for an instance of an airline flight). Rather, a combination of simple attributes will be needed to uniquely identify the entity instance (e.g., FlightID and FlightDate would make the instance unique).

Give four reasons why many system designers believe that data modeling modeling is important and arguably the most important part of the systems development process

1. Allows data integrity in an information system   
2. Facilitates interaction and communication between all employees thus reducing misunderstandings   
3. Fosters the understanding of the organization (rules) that are being developed   
4. Provide savings in maintenance or development costs by knowing the requirements before software development and hardware acquisitions

Give four reasons why a business rules approach is advocated as a new paradigm for specifying information systems requirements

1. Are a core concept in an enterprise because they are an expression of business policy and guide individual and aggregate behavior. Well-structured business rules can be stated in natural language for end users and in a data model for systems developers.  
2. Can be expressed in terms that are familiar to end users. Thus, users can define and then maintain their own rules.  
3. Are highly maintainable. They are stored in a central repository, and each rule is expressed only once, then shared throughout the organization. Each rule is discovered and documented only once, to be applied in all systems development projects.  
4. Enforcement of business rules can be automated through the use of software that can interpret the rules and enforce them using the integrity mechanisms of the database management system.

Contrast supertype and subtype

A supertype is a generalized entity type that has one or more subtypes, while a subtype is a subgrouping of the entities in a supertype

Contrast generalization and specialization

Generalization is the process of defining a generalized entity type from a set of more specialized entity types, while specialization is the process of defining one or more subtypes of the supertype

