SmartKalike

CBSE Class 12 · Computer Science

daTabase ConCepTs

10 most probable questions for Boards 2027

Q1. 1 mark · Very short answer

What is the candidate key chosen by the database designer to uniquely identify tuples called?

Answer

A primary key is the candidate key chosen by the database designer to uniquely identify tuples in a relation.

Q2. 2 marks · Short answer

What is a database engine, and what does it do?

Answer

A database engine is the underlying component or set of programs used by a DBMS to create a database and handle queries. It supports data retrieval and manipulation, enabling the DBMS to obtain information and modify stored data.

Q3. 4 marks · Long answer

Explain insertion, deletion, and update in a database, using the examples of a new student joining, a student leaving, and a guardian's phone number changing. Identify which relevant files are affected.

Answer

Database modification consists of insertion, deletion and update operations that change stored data.
1. Insertion adds new data to a database. When Rivaan joins the class, his student details are added to the STUDENT file and his guardian details are added to the GUARDIAN file.
2. Deletion removes data from a database. When a student leaves the school, the student's data and guardian details are removed from the STUDENT and GUARDIAN files, respectively; the student's attendance data is also removed from the ATTENDANCE file.
3. Update changes existing data in a database. When Atharv's guardian changes his mobile number, the guardian's GPhone is updated in the GUARDIAN file.
These operations allow the database to reflect additions, removals and changes in stored information.

Q4. 5 marks · Long answer

Differentiate between a database schema and a database instance. What is a database constraint, and where are database schemas and constraints stored?

Answer

1. Meaning – A database schema is the design of a database; a database instance is the snapshot of the database at any given time.
2. Representation – The schema describes the database's design, whereas the instance

records the database's state at a particular time, including the data then stored.

A database constraint is a restriction on the type of data that can be inserted into a table. It specifies what data is permitted for a table, helping prevent entries that violate the database's requirements. Database schemas and database constraints are stored in the database catalog. The catalog therefore contains both the database design and the restrictions governing data insertion.

Q5. 6 marks · Very long answer

Explain the rules that apply to attribute names in a relation and to the sequence of its attributes. Illustrate why changing the column order does not change the relation's meaning.

Answer

A relation stores related data in attributes, and its attribute names and arrangement follow specific rules.

1. Each attribute in a relation has a unique name. For example, a relation cannot use the name GPhone for two different columns, because each name must identify one attribute clearly.
2. Attribute names identify the characteristics for which data are stored. In the STUDENT relation, RollNumber and SName identify different attributes and therefore must have distinct names.
3. The sequence of attributes in a relation is immaterial. The order in which columns appear does not change which attributes the relation contains or the meaning of the stored data.
4. For example, STUDENT(RollNumber, SName, SDateofBirth, GUID) can place SName before RollNumber instead. If each value remains associated with its correct attribute name, the relation represents the same student information.

These rules make column names important for interpretation, while column order does not determine a relation's meaning.

Q6. 10 marks · Very long answer

A relation has several candidate keys. Explain how the database designer selects a primary key and what happens to the remaining candidate keys. Then apply this to GUARDIAN if GUID is selected as the primary key. Give a second example with two candidate keys of your own, identify the chosen primary key and name its alternate key.

Full answer on SmartKalike: https://smartkalike.com/cbse/class-12/computer-science/database-concepts

Q7. 1 mark · Very short answer

What are the remaining candidate keys called after one candidate key has been selected as the primary key?

Full answer on SmartKalike: https://smartkalike.com/cbse/class-12/computer-science/database-concepts

Q8. 2 marks · Short answer

What is a foreign key, and how does it represent a relationship between two relations?

Full answer on SmartKalike: https://smartkalike.com/cbse/class-12/computer-science/database-concepts

Q9. 4 marks · Long answer

Explain what a data model describes, identify the most commonly used data model, and state what tables are called in that model. Also explain why a database schema can have multiple instances over time.

Full answer on SmartKalike: https://smartkalike.com/cbse/class-12/computer-science/database-concepts

Q10. 5 marks · Long answer

Describe the problems that can arise when student records are kept only on paper. Include risks of loss or damage and the difficulty of finding, deleting or modifying information, then explain how computerised files can make these tasks easier.

Full answer on SmartKalike: https://smartkalike.com/cbse/class-12/computer-science/database-concepts

Unlock all answers on SmartKalike

Every probable question of every chapter, each with a full answer, plus study targets and answer-sheet checking.

https://smartkalike.com/cbse/class-12/computer-science/database-concepts

Sign up with a friend's email for 30% off their first purchase.