

Solutions

Each answer shows the steps, then the **result**.

2.1

- a description of every table, field, data type and key in the database (its structure)

2.2

- a group of operations treated as one unit — they **all succeed or all fail**

2.3

- any two of: data dictionary; concurrency control; transactions; central integrity rules; views; per-user security; backup/recovery

2.4

- a **virtual table** that shows a user a chosen slice of the data (selected rows/columns)

3.1

- any two, described, e.g. **central integrity rules** — keys and constraints enforced for all programs, so data stays valid
- **concurrency control** — locks/transactions let many users edit without corrupting data

3.2

- the DBMS uses **locks** and **transactions**
- two users cannot change the same data at once and each transaction completes fully or not at all

3.3

- any two with a use, e.g. query builder (build queries without writing SQL); forms designer (build data-entry screens); report generator (produce formatted output)

3.4

- **data dictionary:** data about the data — a description of every table, field, data type and key
- **logical schema:** the overall logical design of the database — its tables, fields, keys and relationships