

A-Level Computer Science

Name: _____ Score: _____

1. Storing a customer's address in several separate files leads to:
 - ☐ faster queries
 - ☐ data redundancy, which can cause inconsistency
 - ☐ automatic backups
 - ☐ better security
2. In an E-R diagram, the number of one entity that can relate to one of the other, marked at each end of the line, is the _____.

3. A data dictionary in a DBMS holds:
 - ☐ the program source code
 - ☐ a description of every table, field, type and key
 - ☐ the user's passwords
 - ☐ the actual customer records
4. Which is part of the Data Definition Language (DDL)?
 - ☐ INSERT
 - ☐ CREATE TABLE
 - ☐ UPDATE
 - ☐ SELECT
5. In a flat-file system the same data is often duplicated across files, which can become inconsistent when only one copy is updated.
 - ☐ True ☐ False
6. Each customer can place many orders, but each order belongs to one customer. This relationship is:
 - ☐ many-to-many (M:N)
 - ☐ one-to-many (1:M)
 - ☐ one-to-one (1:1)
 - ☐ no relationship
7. The logical schema of a database describes:
 - ☐ the tables, attributes and relationships, independently of how the data is physically stored

- ☐ the passwords of the users
- ☐ the SQL queries most often run
- ☐ where each record is stored on the disk

8. DDL defines the structure (e.g. CREATE TABLE), while DML works with the data inside it (SELECT, INSERT, UPDATE, DELETE).

- ☐ True ☐ False

9. Which are limitations of the file-based approach? Select **all** that apply.

- ☐ there are too many tables to join
- ☐ the same data is duplicated in several files
- ☐ copies of the data become inconsistent
- ☐ programs depend on the file layout, so a change means rewriting them

Tick every correct option.

10. ENROLMENT(StudentID, CourseID, EnrolmentDate) is a link table. Which statements are true? Select **all** that apply.

- ☐ each row records one student on one course
- ☐ its primary key is the composite of the two foreign keys
- ☐ it should also store the student's name and phone number
- ☐ it turns one many-to-many relationship into two one-to-many relationships

Tick every correct option.

1. data redundancy, which can cause inconsistency

The same data held in many places (redundancy) can be updated separately and become inconsistent.

2. cardinality

Cardinality is one or many at each end; crow's-foot notation draws a bar for one and a foot for many.

3. a description of every table, field, type and key

The data dictionary describes the database structure, so programs query it rather than hard-coding the layout.

4. CREATE TABLE

DDL changes the structure (CREATE, ALTER, DROP). SELECT/INSERT/UPDATE/DELETE are DML (working with data).

5. True

That redundancy and the resulting inconsistency is the core problem the relational model solves.

6. one-to-many (1:M)

One customer → many orders, each order → one customer: a one-to-many relationship.

7. the tables, attributes and relationships, independently of how the data is physically stored

The logical design is separate from the physical storage, which is what lets the storage change without the programs noticing.

8. True

Definition vs Manipulation: DDL shapes the tables; DML reads and changes the rows.

9. the same data is duplicated in several files; copies of the data become inconsistent; programs depend on the file layout, so a change means rewriting them

Redundancy, inconsistency and data dependence are the three named limitations. Tables and joins belong to the relational approach that replaces it.

10. each row records one student on one course; its primary key is the composite of the two foreign keys; it turns one many-to-many relationship into two one-to-many relationships

The link table holds the pairing and facts about the pairing. The student's own data stays in STUDENT, or it would repeat on every enrolment.