

## 1.3 EXCHANGING DATA · 1.3.2

**Database concepts, keys & ER modelling**

Original practice questions · 35 marks · about 45 minutes · spec 1.3.2(a)(b)

**Instructions.** Answer all questions. The number of marks is shown in brackets [ ]. Quality of written communication is assessed in the extended-response question.

**1** Total: 5 marks

A shop stores all its data in a single flat-file table that lists each order along with the full customer details.

**(a)** Describe **two** problems with using a flat-file structure for this data. [4]

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**(b)** State the type of database that would solve these problems. [1]

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**2** Total: 6 marks

This question is about keys in a relational database.

**(a)** Describe what is meant by a *primary key*, giving an example. [2]

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**(b)** Define the term *foreign key*, giving an example. [2]

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**(c)** Explain the difference between a foreign key and a secondary key. [2]

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3

Total: 4 marks

A database stores a field `SurnameInitial` (e.g. "S") for each customer.

- (a) State why `SurnameInitial` would not be a suitable primary key. [1]
- (b) State one field that would be a suitable primary key for the customers, and explain why. [2]
- (c) State one use of a secondary key in this database. [1]

4

Total: 8 marks

A library database has the entities **Member**, **Loan** and **Book**. A member can have many loans; each loan is for one book; a book can be loaned many times.

- (a) Draw an entity relationship diagram for the three entities, showing the degree of each relationship. [4]



- (b) The library also wants to record which members have read which authors (a member can read many authors; an author is read by many members). Explain how this many-to-many relationship would be implemented in the database. [4]

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5

Total: 3 marks

A company collects customer data through its website and shares some of it with delivery partners.

- (a) Identify one method of capturing a new customer's personal data. [1]
- (b) Identify **two** methods or formats for exchanging data with the delivery partners' computer systems. [2]

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