

THEME A: CONCEPTS · A3.3

Database programming

Original practice questions · 34 marks · about 55 minutes · covers A3.3.1–A3.3.6

Instructions. Answer all questions. The maximum mark for this paper is [34 marks]. The marks available are shown in brackets. Parts badged **HL** assess higher level only content; standard level students may leave these out.

1**Total: 5 marks**

SQL is divided into different data language types.

- (a)** Outline the difference between data definition language (DDL) and data manipulation language (DML). **[3]**

- (b)** Identify which of these two types the CREATE TABLE statement belongs to. **[1]**

- (c)** Identify which of these two types the SELECT statement belongs to. **[1]**

An online bookshop stores its data in the three tables shown below.

Table 1: CUSTOMER

CustID	CustName	City	JoinDate
C101	Priya Nair	Leeds	2025-02-14
C102	Jonas Weber	Bristol	2025-06-30
C103	Amara Diallo	Leeds	2026-01-08

Table 2: BOOK

ISBN	Title	Genre	Price
978014	Tidewater	Modern History	12.99
978027	The Quiet Engine	Science	18.50
978033	Salt and Iron	Ancient History	22.00

Table 3: ORDERS

OrderID	CustID	ISBN	OrderDate	Quantity
9001	C101	978027	2026-03-02	1
9002	C103	978014	2026-03-05	3
9003	C101	978033	2026-03-09	2

- (a) Construct an SQL query to list the title and price of every book costing more than 15, with the most expensive first.

[3]

- (b) Construct an SQL query to list the customer name and the book title for every order.

[4]

3

Total: 6 marks

The bookshop runs two further queries on the same tables.

- (a) Construct an SQL query to list each city that customers come from, with no city appearing more than once. [3]

- (b) Construct an SQL query to list the titles of all books whose genre contains the word History. [3]

4

Total: 5 marks

The bookshop needs to change the data it holds.

- (a) Construct an SQL statement to increase the price of every Science book by 10 per cent. [2]

- (b) Construct an SQL statement to add a new customer, C104, named Ines Duarte from Cardiff, who joined on 2026-04-01. [2]

- (c) State **one** reason why updating a column that is indexed takes longer than updating a column that is not. [1]

5

Total: 6 marks

The bookshop produces sales reports from the same tables.

- (a) **HL** Construct an SQL query to show each customer ID together with the number of orders that customer has placed. **[3]**

- (b) **HL** Construct an SQL query to show the average price of the books in each genre, listing only those genres whose average price is above 15. **[3]**

6

Total: 5 marks

Placing an order reduces the stock figure and creates a record in ORDERS. Shop floor staff are given access to customer data through a view rather than to the CUSTOMER table itself.

- (a) **HL** Outline **one** reason for giving staff a view rather than direct access to the CUSTOMER table. **[2]**

- (b) **HL** Describe how the ACID properties keep the database correct when an order is placed. **[3]**

END OF QUESTIONS