

Section III

40 marks

Attempt TWO questions from Questions 25–28

Allow about 1 hour and 10 minutes for this section

Answer each question in a SEPARATE writing booklet. Extra writing booklets are available.

If you include diagrams in your answer, ensure that they are clearly labelled.

Question 25 — Transaction Processing Systems (20 marks)

Use a SEPARATE writing booklet.

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|-----|------|--|----------|
| (a) | (i) | What is a Radio Frequency Identification (RFID) tag ? | 1 |
| | (ii) | Describe the use of transaction logs in a transaction processing system. | 2 |
| (b) | (i) | Identify characteristics of a transaction processing system where real-time processing is appropriate. | 2 |
| | (ii) | Explain why batch processing could be the best solution when processing transactions. | 3 |

Question 25 continues on page 16

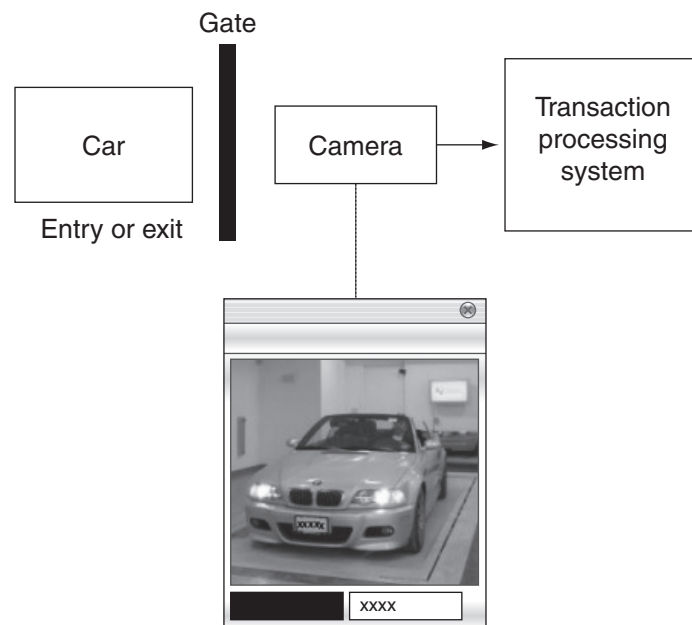
Question 25 (continued)

- (c) A parking system coordinates the entry and exit of vehicles into a private car park.

Account holders are given automated access to the carpark using licence plate recognition and can have any number of vehicles registered to their account.

The system operates by taking a photo of vehicles on entry to the carpark and compares the plate number to those of account holders it holds on a database. If there is a match the vehicle is allowed to continue. The same procedure occurs on exit.

Times are kept in a transaction log for each entry and exit. An amount is then debited from the account holder's nominated bank account at the end of each month.



- (i) Construct a data flow diagram for the vehicle entry subsystem of the parking system showing all external entities, data flows, processes and data stores. **3**
- (ii) Describe the collecting and storing/retrieving information processes of this parking system. **4**
- (iii) Predict a future application of the technology used in this system. In your response, consider security and the changing nature of work. **5**

End of Question 25