Marks

Question 27 — Automated Manufacturing Systems (20 marks)
Use a SEPARATE writing booklet.

(a) (i) Describe Computer Aided Design, using an example. **3**

(ii) Identify TWO actuators and describe a situation in which each would be used. **3**

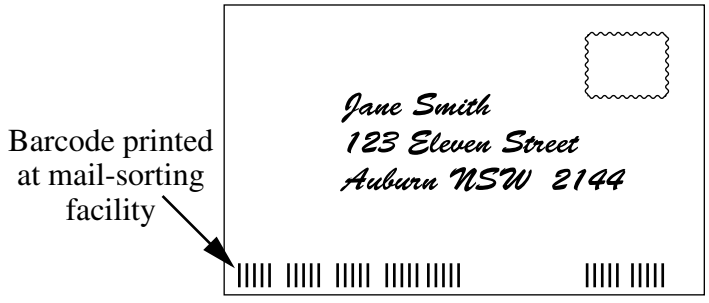
(b) In an automated mail-sorting facility, letters are sorted by a scanning machine into two broad categories:

- letters with preprinted barcodes;
- letters without barcodes.

The barcoded letters can then be directly sorted into postcode areas. The other letters are scanned by an OCR device. The system finds the matching barcode for the address and then prints a barcode on the bottom of the letter. These letters are then sorted into their postcode areas. Examples are given below:

A barcoded business letter

A scanned letter with printed barcode



(i) Draw a block diagram of the automated letter-sorting system. **4**

(ii) Explain advantages and disadvantages of using barcodes in commercial applications, such as mail sorting. **4**

Question 27 continues on page 23

Marks

Question 27 (continued)

(c) Get-it-Quick is the automated warehouse system used by a large clothing wholesaler that supplies fashion items to retail stores. Orders from the retailers go direct to the warehouse. Get-it-Quick then picks, packs and dispatches the orders. Get-it-Quick also tracks goods from storage in the warehouse until delivery. **6**

Using the automated warehouse system, the manager can find out at any time:

- The number of fashion items in stock;
- The movement of items from storage to dispatch;
- The movement of items from dispatch to delivery to the customer.

Describe and analyse the Get-it-Quick system in terms of the information processes of:

- collecting;
- processing;
- displaying;

with particular emphasis on the process of collecting.

End of Question 27