Car Park flowchart

Scenario

A car park has introduced a computer-controlled barrier and payment system.

Figure 1 is a diagram of the car park showing the placement of key components of the system.

Diagram is not to scale.

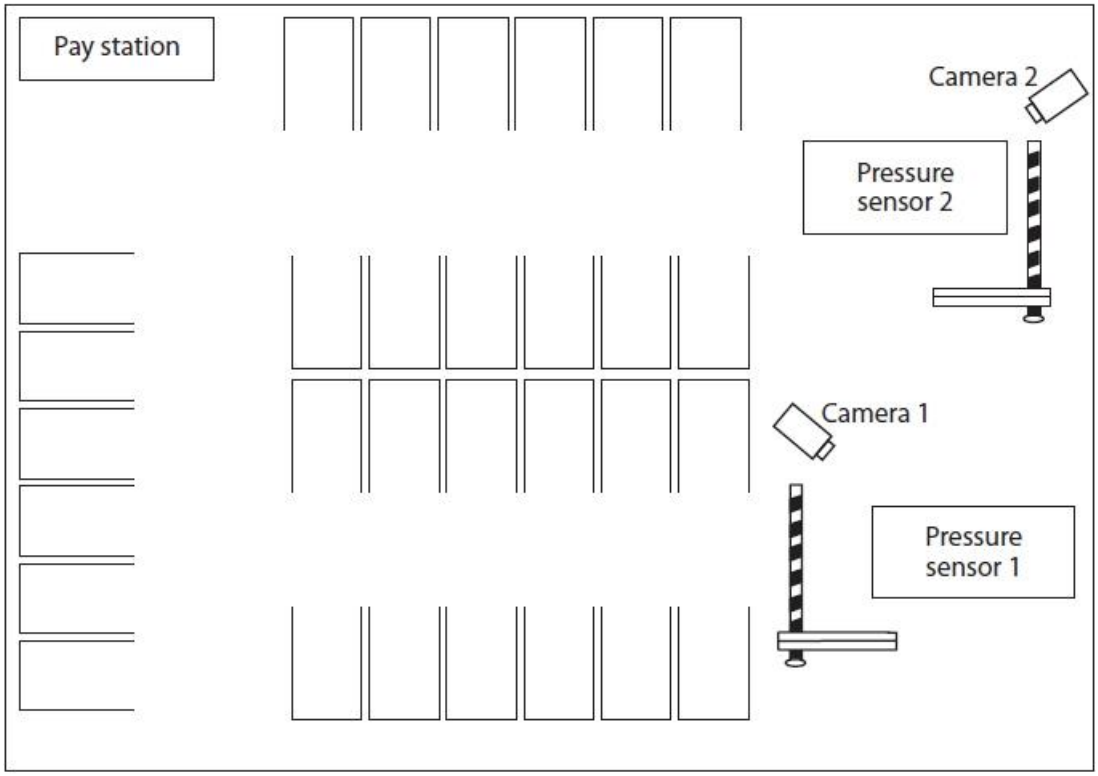


Figure 1

Figure 2 shows some of the specifications of the system.

Parking System Specifications

Pressure sensor 1 detects when a car approaches the barrier to enter.

Camera 1 takes a picture of the car's number plate.

The system uses character recognition to read the number plate and stores this and the time the car enters for later use.

Drivers have to pay at the pay station before going to their car and leaving.

At the pay station:

- drivers enter their car's number plate
- the parking system checks that the number plate the driver has entered matches a stored number plate
- the parking system calculates the cost of parking using the time at which:
  - the car entered the car park
  - the driver entered their number plate in to the pay station
- drivers pay for parking using cash or a credit/debit card
- the parking system records the number plate as 'paid'.

Pressure sensor 2 detects when a car approaches the barrier to leave.

Camera 2 takes a picture of the car's number plate.

The number plate is checked to see if the driver has paid.

If the driver has paid the barrier opens.

Figure 2

Figure 3 shows the criteria used for calculating parking charges.

Parking Charges

First 30 minutes – **Free**

Longer than 30 minutes:

- £0.50 for 31–60 minutes
- then a rate of £0.70 for each additional 60 minutes.

Figure 3

Q1

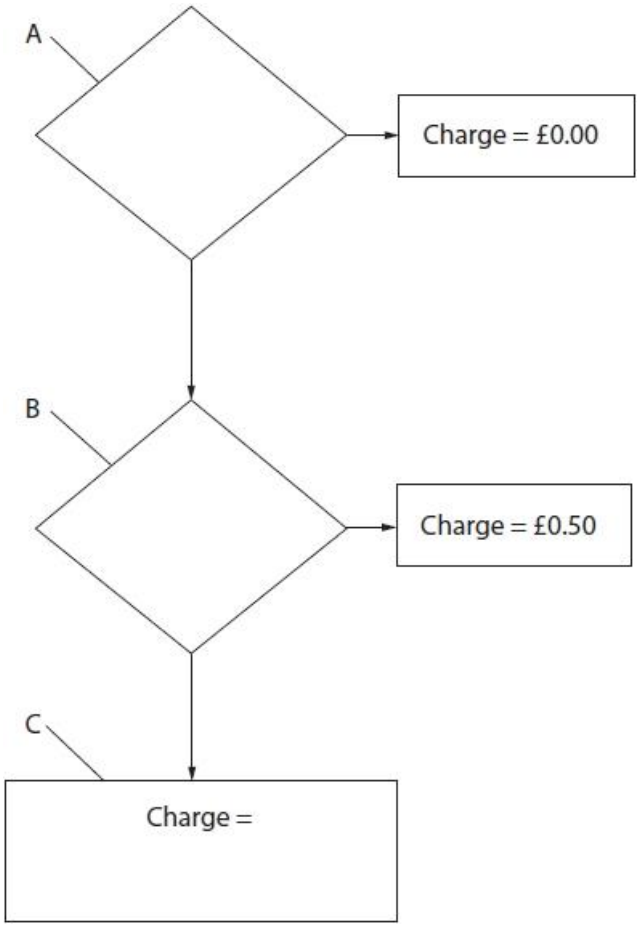
Complete boxes A, B and C for the given flow chart.

The flow chart must show the logic the system will use when calculating the parking charge.

You must include:

- the correct logical check for boxes A and B
- the calculation/formula for box C.

(4)



Q2

Draw a flowchart that shows the logic used by the system when a car approaches the barrier to leave the car park.

Assume that if a driver has not paid an error message is output to a screen next to the barrier.

(3)