Name: Class: Mark:

1. Name a suitable sensor which could be used in each of the following applications: [5]

(a) Opening and closing of automatic doors at a hotel as a guest approaches

(b) Monitoring the air pollution at the perimeter of an airport

(c) Checking whether clothes are sufficiently dry in a tumble dryer

(d) Detect a person entering a room and automatically turn on the lights

(e) Show the amount of petrol that has been put into a car at a petrol station

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| --- | --- |
| **Application** | **Suitable sensor** |
| **a** |  |
| **b** |  |
| **c** |  |
| **d** |  |
| **e** |  |

2. Describe how sensors and a computer can be used to monitor the vital signs
(heart rate, temperature and blood pressure, for example) of a patient in a hospital. [5]

3. A delivery van is being designed which will be used to deliver chilled and frozen goods from a supermarket to customer’s houses. It will require the following features:

1. The temperature must be kept at a constant value for each section of the van.
2. At night-time, the headlights and dashboard lights will come on.
3. If the truck is reversing a warning signal will sound and a reversing camera will turn on.
4. If the van has a puncture, this will be detected and reported to the driver.

(a) Identify the type of data captured by each of the sensors required in the car. [1]

(b) Complete the table below by selecting the most suitable sensor for each of the above requirements. [4]

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| **Application** | **Suitable sensor** |
| **a** |  |
| **b** |  |
| **c** |  |
| **d** |  |

 [Total 15 Marks]