

Work s

Fig. 8.1 shows a car battery being charged from a 200V a.c. mains supply.

Q2 WB

Pg # 134

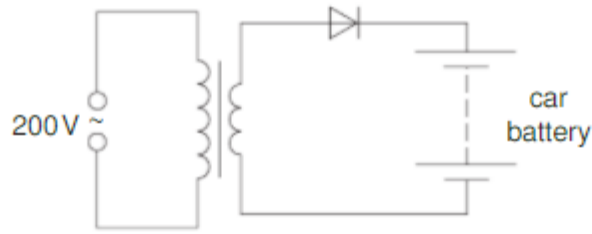


Fig. 8.1

) State the function of the diode.

.....
 [1]

Q3 WB

Pg#135

(a) Describe the action of

(i) a NOT gate,

..... [1]

(ii) a thermistor.

..... [1]

(b) Fig. 11.1 shows a circuit that switches on a warning lamp when the temperature in an oven falls below a set value.

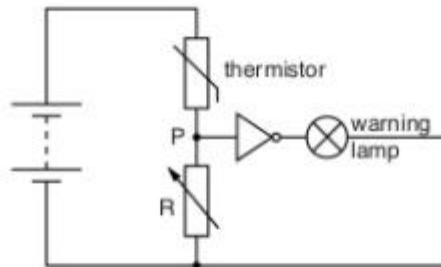


Fig. 11.1

Explain, with reference to the components in the circuit and point P,

(i) why the warning lamp is on when the temperature in the oven is below the set value,

.....

a All electronic systems have *input sensors, processors and an output device*. Explain the function of
i input sensors [1]
ii processors. [1]

b The block diagram below shows an electronic system that can be used as a burglar alarm.



A, B and D are the inputs. The processor contains logic gates X and Y. The alarm is the output device. The truth table for the circuit is shown at the top of the next column.

A	B	C	D	E
0	0	0	0	0
0	1	1	0	0
1	0	1	0	0
1	1	1	0	0
0	0	0	1	0
0	1	1	1	1
1	0	1	1	1
1	1	1	1	1

i Use a truth table to identify the logic gates. [2]

ii State an input, A, B or D which could be connected to a sensor in order to detect a burglar. [1]

iii Name a suitable device which could be used as an input processor. [1]

Fig. 11.1 is a schematic diagram of an electronic circuit controlling a lamp.

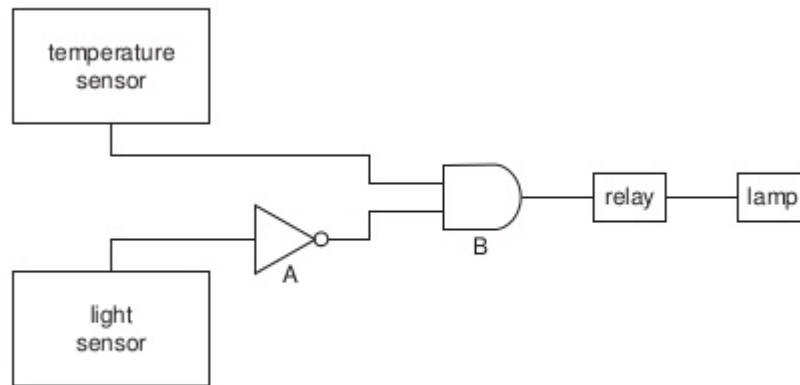


Fig. 11.1

(a) State the names of the logic gates A and B.

A B [2]

(b) The output of the temperature sensor is high (logic 1) when it detects raised temperature. The output of the light sensor is high (logic 1) when it detects raised light levels.

State the outputs of A and B when the surroundings are

(i) dark and cold, output of A =
 output of B = [1]

(ii) dark and warm, output of A =
 output of B = [1]

(iii) bright and warm. output of A =
 output of B = [1]