Oxford Cambridge and RSA

A level Physics B

H557/02 Scientific literacy in physics

Question Set 7

1 This question is about investigating the polarisation of light.

A student takes two polarising filters as shown in **Fig. 1.1**.

Unpolarised light is incident on the filter 1.

Filter 2 is initially set up to allow all the light passing through the first filter to be transmitted.The filter 2 is then rotated through 360°.

(a) Describe and explain how the intensity of the transmitted light changes during the rotation of the second filter.

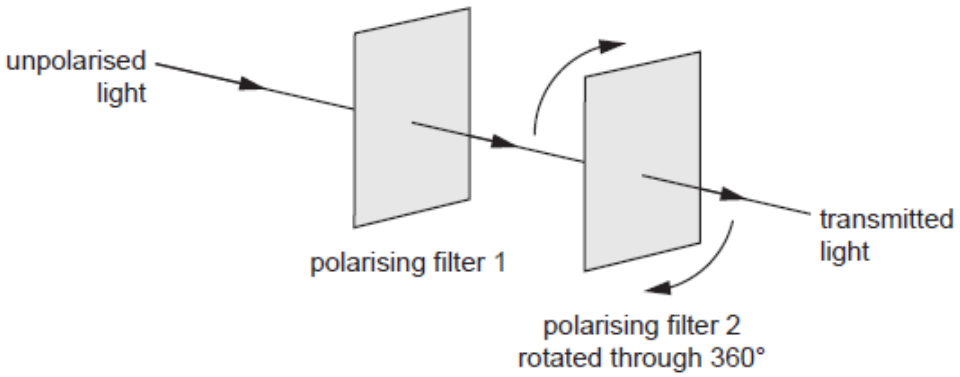

Fig. 1.1 **[2]**

(b) The transmitted light strikes an LDR in the circuit shown in **Fig. 1.2**.

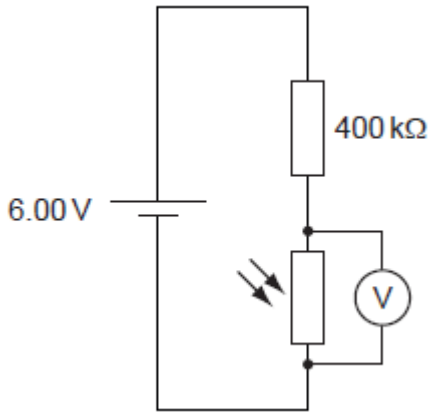

Fig. 1.2

(i) Describe and explain how the p.d. across the LDR changes as the second filter is rotated through 360° from its original orientation.

You do not need to give values for the p.d. but you should indicate the orientation of the filters which produce maximum and minimum p.d.s.

[4]

(ii) The highest p.d. recorded by the voltmeter is 3.00 ± 0.01 V.

Calculate the **maximum** value of the resistance of the LDR at this point.

Assume that there is no uncertainty in the p.d. of the cell.

maximum value of resistance =……..Ω **[2]**

Total Marks for Question Set 7: 8