

AS Level Physics A
H156/02 Depth in physics

Question Set 21

1 (a)

In an experiment to demonstrate the photoelectric effect, electromagnetic waves are incident on a silver surface.

Fig. 6 shows the variation with frequency f of the maximum kinetic energy KE_{\max} of the photoelectrons.

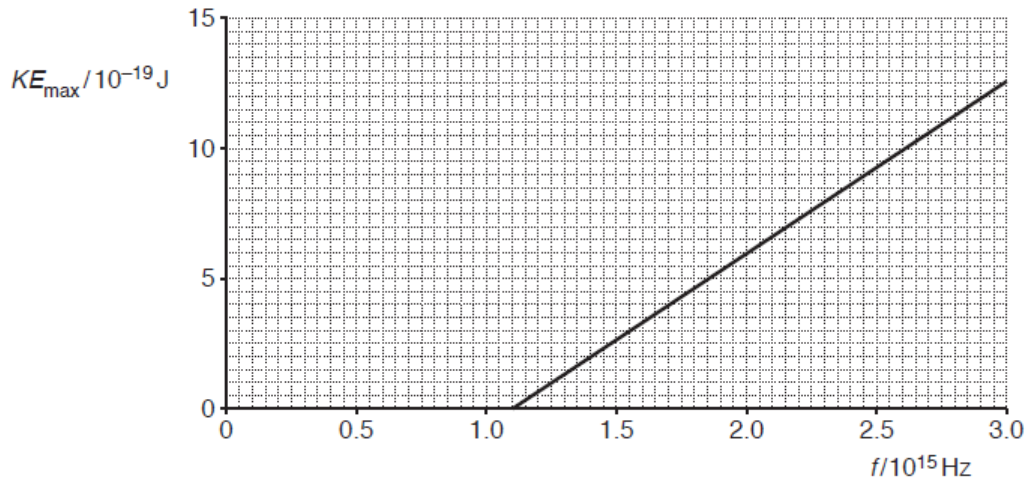


Fig. 6

(i) Define the term **threshold frequency**.

[1]

(ii) Use Fig. 6 to state the threshold frequency f_0 for silver.

$$f_0 =$$
$$\text{Hz}$$

[1]

(iii) Use your answer in (ii) to calculate the work function ϕ of silver.

Give your answer in electron volt (eV).

$$\phi =$$
$$\text{eV}$$

[2]

(b) Electrons can behave as a wave.

Describe the behaviour of electrons which demonstrates that they have wave properties.

[4]

Total Marks for Question Set 21: 8

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