7 Electrons are emitted from a metal surface when it is illuminated with suitable electromagnetic radiation.

(a) Name the effect described above.

.....[1]

(b) The variation with frequency f of the maximum kinetic energy E_k of the emitted electrons is shown in Fig. 7.1.

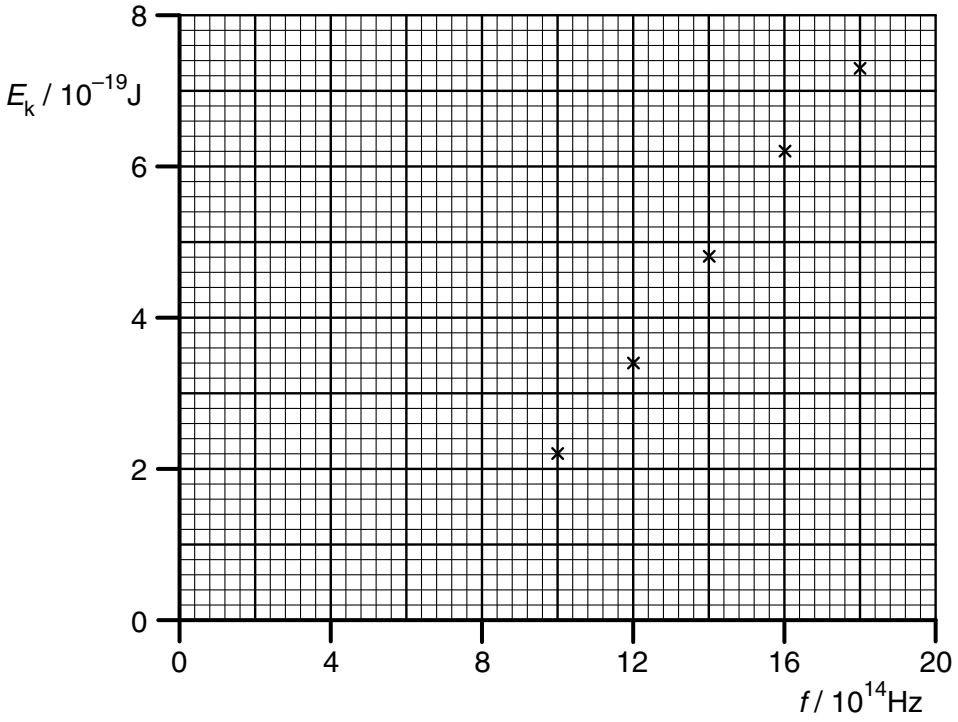

Fig. 7.1

Use Fig. 7.1 to determine

(i) the threshold frequency of the radiation,

threshold frequency = ... Hz

(ii) a value for the Planck constant.

Planck constant = ... J s
[4]

(c) On Fig. 7.1, draw a line to show the variation with frequency f of the maximum kinetic energy E_k of the emitted electrons for a second metal which has a lower work function than that in **(b)**. [2]

(d) The kinetic energy of the electrons is described as the maximum. Suggest why emitted electrons are likely to have a range of values of kinetic energy for any one frequency of the electromagnetic radiation.

.....

.....

.....[2]