6 **(a)** Data for the wavelength λ of the radiation incident on a metal surface and the maximum kinetic energy E_k of the emitted electrons are shown in Fig. 6.1.

λ /nm	E_k /10^{-19} J
670	–
240	4.44

Fig. 6.1

(i) Without any calculation, suggest why no value is given for E_k for radiation of wavelength 670 nm.

…….....

…….....[1]

(ii) Use data from Fig. 6.1 to determine the threshold frequency of the surface.

threshold frequency = ...Hz [2]

(b) Radiation of wavelength 240 nm gives rise to a maximum photoelectric current I.
The intensity of the incident radiation is constant and the wavelength is now reduced.

State and explain the effect of this change on

1. E_k

…….....

…….....

……..... [1]

2. I

…….....

…….....

……..... [2]

[Total : 6]