

- 8 (a) By reference to the photoelectric effect, state what is meant by the *threshold frequency*.

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[2]

- (b) The surface of a zinc plate has a work function of 5.8×10^{-19} J.
In a particular laboratory experiment, ultraviolet light of wavelength 120 nm is incident on the zinc plate. A photoelectric current I is detected.
In order to view the apparatus more clearly, a second lamp emitting light of wavelength 450 nm is switched on. No change is made to the ultraviolet lamp.

Using appropriate calculations, state and explain the effect on the photoelectric current of switching on this second lamp.

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[4]