11 (a) State what is meant by a *photon*.

.....

.....

..... [2]

(b) Calculate the energy, in eV, of a photon of light of wavelength 540 nm.

energy = ... eV [3]

(c) The outermost electron energy bands of a semiconductor material are illustrated in Fig. 11.1.

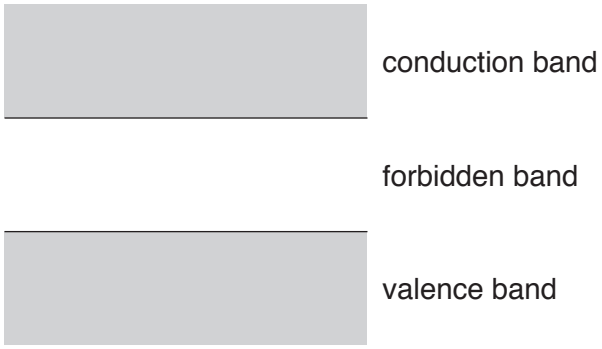

Fig. 11.1

The width of the forbidden band is 1.1 eV.

Explain why, when photons of light, each of energy 2.1 eV, are incident on the semiconductor material, its resistance decreases.

.....

.....

.....

.....

.....

..... [4]

[Total: 9]