For Examiner's Use

7 **(a)** State an effect, one in each case, that provides evidence for

(i) the wave nature of a particle,

.....[1]

(ii) the particulate nature of electromagnetic radiation.

.....[1]

(b) Four electron energy levels in an atom are shown in Fig. 7.1.

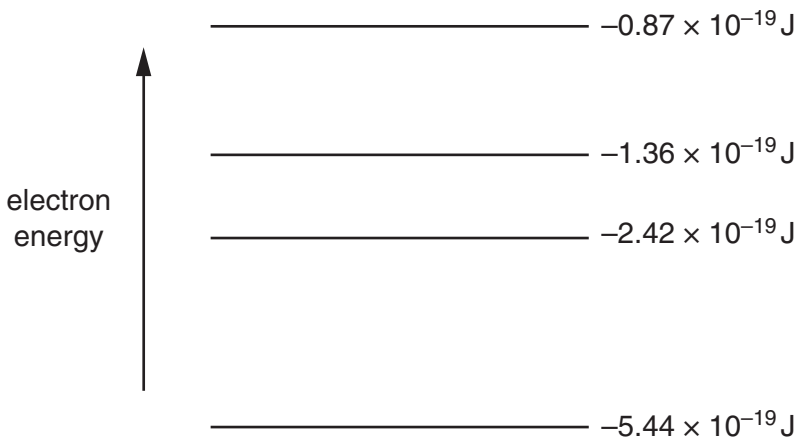

Fig. 7.1 (not to scale)

An emission spectrum is associated with the electron transitions between these energy levels.
For this spectrum,

(i) state the number of lines,

.....[1]

(ii) calculate the minimum wavelength.

wavelength = ... m [2]

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