OCR
Oxford Cambridge and RSA

A level Physics B

H557/01 Fundamentals of physics

Question Set 20

1

This question is about a model of an atom with one electron.

The electron is trapped in a box as shown in **Fig. 1**.

Possible electron kinetic energy levels are plotted as shown.

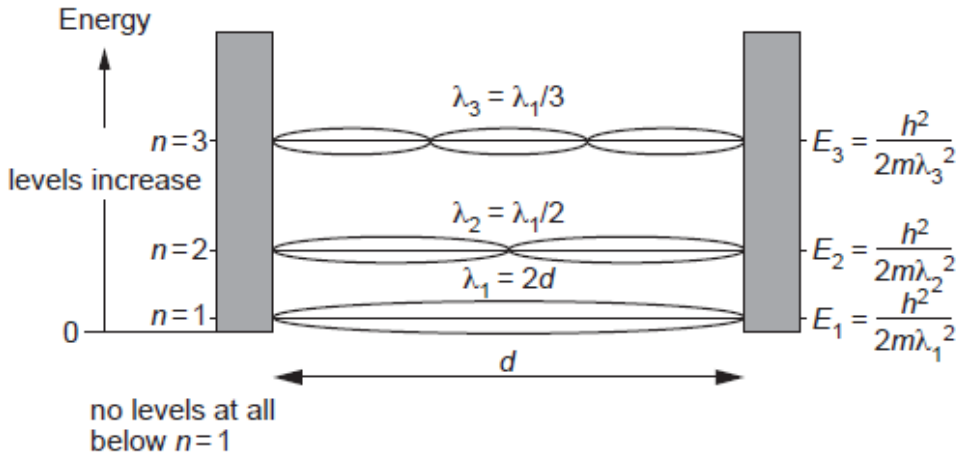

Fig.1

(a) Explain how this model gives rise to discrete quantised energy levels for the atom.

[2]

(b) How many different frequencies of photon can be emitted from an atom with 3 energy levels?

[1]

(c) The distance *d* between the walls of the box is about atomic size ≈ 0.10 nm.

Calculate the frequency of the most energetic photon that this model atom could emit.

frequency =……..…….Hz **[3]**

Total Marks for Question Set: 6