Question 21 (3 marks)

The energy levels of the hydrogen atom are discrete (quantised) and there are no levels between them.

Explain, in terms of the properties of the electron in the hydrogen atom, why only certain energy levels are allowed.

Electrons have a wavelength (1)
Only orbits that can exist are the orbits where standing wave can formed (1)
which is possible when circumference equal whole number of wavelength. And wavelength is related to electron's energy

$$\lambda = \frac{h}{\sqrt{2mE_K}}$$

END OF QUESTION AND ANSWER BOOK

DO NOT WRITE IN THIS AREA