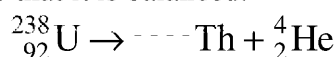


- An atom of tin has:
 - the symbol Sn
 - 55 neutrons
 - 50 protons
 - Write this in the form A_ZX .
 - A different atom of tin has 50 neutrons. What term is used to describe this?
 - An atom of tin can easily lose two electrons. State the name given to the lost electrons.

- Copy and complete this equation so that it is balanced.



- Copy and complete this table.

particle name and symbol	antiparticle name and symbol	particle charge	antiparticle charge	particle mass
electron, e^-		-1		0
	antineutrino, $\bar{\nu}$		0	

- A photon has a frequency of $2.9 \times 10^{14} \text{ Hz}$.
 - Calculate the energy of a photon. Give your answer in joules.
 - Convert your answer to eV and use a suitable prefix.

- The electromagnetic force is one of the fundamental forces.
 - Give an example of how the electromagnetic force acts within an atom.
 - State the exchange particle responsible for the electromagnetic force.

- State what baryons are composed of.
 - Name the most stable baryon.
 - State the baryon number of
 - an antiproton
 - an electron

- State the class of particle that muons belong to.
 - Name the type of particle that muons decay into.

- State the change in quark composition of a nucleus when a beta minus decay occurs.
 - Name the type of interaction involved in beta decay.

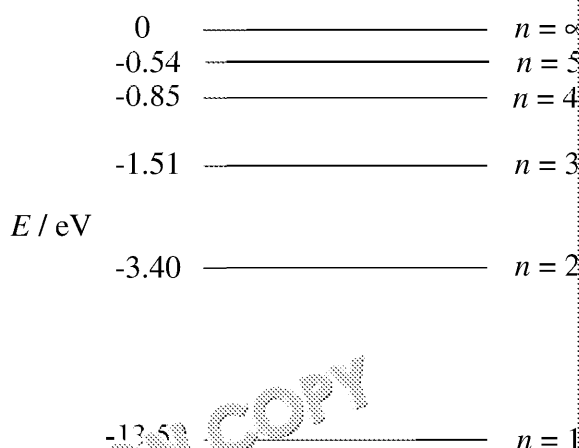
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9. Photoelectrons can be emitted when electromagnetic radiation is incident on a metal surface.
- Explain the importance of the photoelectric effect in developing quantum theory.
 - Calculate the threshold frequency for a metal whose work function is 4.5 eV .
10. When electrons pass through a thin piece of graphite, they are diffracted, which shows that electrons have wave properties.
- Calculate the momentum of an electron with wavelength 10^{-10} m .
 - When diffracted electrons strike a fluorescent screen, light is emitted. This shows that electrons also have particle properties.



11. The diagram shows the energy levels in an atom.



An electron moves from a level $n = 3$ to level $n = 2$.

- What is the name given to this type of change?
- Calculate the frequency of the photon emitted by this change.



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Preview of Questions Ends Here

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