

Nuclei

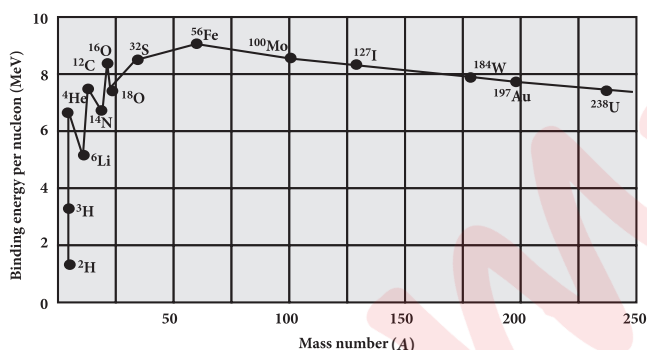


TRY YOURSELF

- Nuclear density
- 10^{-8} cm
- One electron volt is the energy gained by an electron, when accelerated through a potential difference of one volt.
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Isobars	Isotopes
Isobars are the atoms of different elements which have same atomic weight but different atomic number.	Isotopes element are the atom of element which have same atomic number but different atomic weights.

- Nuclear density.
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- The binding energy curve reaches a maximum value of 8.75 MeV for iron.
- The greater the binding energy per nucleon in a nucleus, the

ANSWERS

greater is the minimum energy needed to remove a nucleon from the nucleus.

- Nuclear density
- $\Delta m = Zm_p + (A - Z)m_n - m_N$
- Heavy nucleus are unstable due to large repulsive forces.
- Nuclear forces holds nucleons together in a nucleus.
- Neutron is unstable out of the four given particles.
- They are used to produce neutron beam of high intensity which is used in the treatment of cancer and nuclear research.
- Otto Hahn
- It is defined as the ratio of the number of fast neutrons produced by thermal fission to the number of thermal neutrons absorbed in the fuel.

17. Moderators

$$18. \Delta m = 0.3 \% \text{ of } 1 \text{ kg} = \frac{0.3}{100} \times 1 = 3 \times 10^{-3} \text{ kg}$$

$$\text{Energy liberated} = \Delta mc^2$$

$$E = (3 \times 10^{-3})^2 \times 9 \times 10^{16} \\ = 2.7 \times 10^{14} \text{ joule}$$

- The energy obtained continuously from the sun and the stars. Source of such energy is nuclear fusion.
- To raise temperature of the material such that particles have enough energy to overcome the electrical repulsion between protons.

