

Q2 Heavy stable nuclei have more neutrons than protons. This is because of the fact that

- (a) neutrons are heavier than protons.
- (b) electrostatic force between protons are repulsive.
- (c) neutrons decay into protons through beta decay.
- (d) nuclear forces between neutrons are weaker than that between protons.

Solution :- Coulomb forces between protons are repulsive and nuclear forces are ordinarily attractive. For nuclei to be stable nuclear forces must dominate the repulsive force. Moreover, nuclear forces are short ranged and size of heavy nuclei is relatively larger. So, nuclear forces can't act effectively. So, for stability of these relatively larger nuclei repulsive electrostatic forces should be less, so the number of protons should also be less as **electrostatic force between protons is repulsive**. Therefore, number of neutrons must be greater than the number of protons.

So, answer is (b)