



TARGET : NEET (UG) 2024

Course : SARANSH (Youtube Live CRASH COURSE)

PHYSICS

DPP

DAILY PRACTICE PROBLEMS

DPP NO. 1

PHYSICS: NUCLEAR PHYSICS

DPP No. : 1

- The stable nucleus that has a radius $1/3$ that of Os^{189} is -
 (1) ${}^7_3\text{Li}$ (2) ${}^4_2\text{He}$ (3) ${}^{10}_5\text{B}$ (4) ${}^{12}_6\text{C}$
- Masses of nucleus, neutron and protons are M , m_n and m_p respectively. If nucleus has been divided in to neutrons and protons, then
 (1) $M = (A - Z) m_n + Z m_p$ (2) $M = Z m_n + (A - Z) m_p$
 (3) $M < (A - Z) m_n + Z m_p$ (4) $M > (A - Z) m_n + Z m_p$
- As the mass number A increases, the binding energy per nucleon in a nucleus
 (1) increases
 (2) decreases
 (3) remains the same
 (4) varies in a way that depends on the actual value of A .
- An α -particle is bombarded on ${}^{14}\text{N}$. As a result, a ${}^{17}\text{O}$ nucleus is formed and a particle is emitted. This particle is a
 (1) neutron (2) proton (3) electronq (4) positron
- How much uranium is required per day in a nuclear reactor of power capacity of 1 MW
 (1) 15 mg (2) 1.05 gm (3) 105 gm (4) 10.5 kg
- Which of the following materials is used for controlling the fission
 (1) heavy water (2) graphite (3) cadmium (4) Berillium oxide
- Atomic reactor is based on
 (1) controlled chain reaction (2) uncontrolled chain reaction
 (3) nuclear fission (4) nuclear fusion
- Thermal neutron means
 (1) neutron being heated
 (2) the energy of these neutrons is equal to the energy of neutrons in a heated atom
 (3) these neutron have energy of a neutron in a nucleus has at normal temperature
 (4) such neutrons gather energy released in the fission process
- The graph of $\ln(R/R_0)$ versus $\ln A$ (R = radius of a nucleus and A = its mass number) is
 (1) a straight line (2) a parabola (3) an ellipse (4) none of these
- Let F_{pp} , F_{pn} and F_{nn} denote the magnitudes of the nuclear force by a proton on a proton, by a proton on a neutron and by a neutron on a neutron respectively. When the separation is 1 fm,
 (1) $F_{pp} > F_{pn} = F_{nn}$ (2) $F_{pp} = F_{pn} = F_{nn}$ (3) $F_{pp} > F_{pn} > F_{nn}$ (4) $F_{pp} < F_{pn} = F_{nn}$

