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NEET ATOMS — DISTANCE OF CLOSEST APPROACH AND IMPACT PARAMETER — PYQS

Max. Marks: 12 **Questions:** 3

Section A (MCQ) — 3 questions

Q.1 When an α-particle of mass m moving with velocity v bombards on a heavy nucleus of charge Ze, its distance of closest approach from the nucleus depends on m as [NEET 2016 (Phase 1)]

(1) $\frac{1}{m^2}$ (2) m (3) $\frac{1}{m}$ (4) $\frac{1}{\sqrt{m}}$

Scan or tap for the full solution

Q.2 An alpha nucleus of energy $\frac{1}{2}mv^2$ bombards a heavy nuclear target of charge Ze. Then the distance of closest approach for the alpha nucleus will be proportional to [AIPMT 2010 (Prelims)]

(1) $\frac{1}{Ze}$ (2) v^2 (3) $\frac{1}{m}$ (4) $\frac{1}{v^4}$

Scan or tap for the full solution

Q.3 In a Rutherford scattering experiment when a projectile of charge z_1 and mass M_1 approaches a target nucleus of charge z_2 and mass M_2, the distance of closest approach is r_0. The energy of the projectile is [AIPMT 2009]

(1) directly proportional to z_1z_2

(2) inversely proportional to z_1

(3) directly proportional to mass M_1

(4) directly proportional to $M_1 \times M_2$

Scan or tap for the full solution

ANSWER KEY

Ques.	1	2	3								
Ans.	**3**	**3**	**1**								