

NEET GRAVITATION — ENERGY OF AN ORBITING SATELLITE, GEOSTATIONARY AND POLAR SATELLITES — PYQS

Max. Marks: 16

Questions: 4

Section A (MCQ) — 4 questions

- Q.1** The minimum energy required to launch a satellite of mass m from the surface of earth of mass M and radius R in a circular orbit at an altitude of $2R$ from the surface of the earth is: [NEET (UG) 2024]

(1) $\frac{5GmM}{6R}$ (2) $\frac{2GmM}{3R}$
 (3) $\frac{GmM}{2R}$ (4) $\frac{GmM}{3R}$

Scan or tap for the full solution



- Q.2** A satellite of mass m is orbiting the earth (of radius R) at a height h from its surface. The total energy of the satellite in terms of g_0 , the value of acceleration due to gravity at the earth's surface, is

[NEET 2016 (Phase 2)]

(1) $\frac{mg_0R^2}{2(R+h)}$ (2) $-\frac{mg_0R^2}{2(R+h)}$
 (3) $\frac{2mg_0R^2}{R+h}$ (4) $-\frac{2mg_0R^2}{R+h}$

Scan or tap for the full solution



- Q.3** The additional kinetic energy to be provided to a satellite of mass m revolving around a planet of mass M , to transfer it from a circular orbit of radius R_1 to another of radius R_2 ($R_2 > R_1$) is

[AIPMT 2010 (Mains)]

(1) $GmM\left(\frac{1}{R_1^2} - \frac{1}{R_2^2}\right)$ (2) $GmM\left(\frac{1}{R_1} - \frac{1}{R_2}\right)$
 (3) $2GmM\left(\frac{1}{R_1} - \frac{1}{R_2}\right)$ (4) $\frac{1}{2}GmM\left(\frac{1}{R_1} - \frac{1}{R_2}\right)$

Scan or tap for the full solution



- Q.4** For a satellite moving in an orbit around the earth, the ratio of kinetic energy to potential energy is

[AIPMT 2005]

(1) $1/2$ (2) $1/\sqrt{2}$ (3) 2 (4) $\sqrt{2}$

Scan or tap for the full solution



ANSWER KEY

Ques.	1	2	3	4							
Ans.	1	2	4	1							