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NEET GRAVITATION — GRAVITATIONAL FIELD AND POTENTIAL — PYQS

Max. Marks: 36 **Questions:** 9

Section A (MCQ) — 9 questions

1. Two bodies of mass m and 9m are placed at a distance R. The gravitational potential on the line joining the bodies where the gravitational field equals zero, will be (G = gravitational constant) : [NEET (UG) 2023]

(1) $-\frac{12Gm}{R}$ (2) $-\frac{16Gm}{R}$

(3) $-\frac{20Gm}{R}$ (4) $-\frac{8Gm}{R}$

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2. A body of mass 60 g experiences a gravitational force of 3.0 N, when placed at a particular point. The magnitude of the gravitational field intensity at that point is [NEET (UG) 2022]

(1) 0.05 N/kg (2) 50 N/kg

(3) 20 N/kg (4) 180 N/kg

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3. In a gravitational field, the gravitational potential is given by, $V = -\frac{K}{x}$ (J/Kg). The gravitational field intensity at point (2, 0, 3) m is [NEET (UG) 2022 (Phase 2)]

(1) $+\frac{K}{4}$ (2) $+\frac{K}{2}$ (3) $-\frac{K}{2}$ (4) $-\frac{K}{4}$

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4. At what height from the surface of earth the gravitation potential and the value of g are -5.4×10^7 J kg^{-1} and 6.0 m s^{-2} respectively? Take the radius of earth as 6400 km. [NEET 2016 (Phase 1)]

(1) 1400 km (2) 2000 km

(3) 2600 km (4) 1600 km

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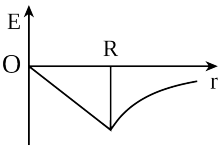
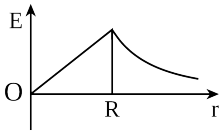
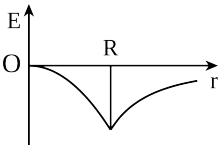
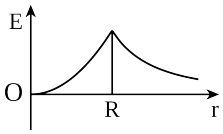
5. Dependence of intensity of gravitational field (E) of earth with distance (r) from centre of earth is correctly represented by [AIPMT 2014]

(1) 

(2) 

(3) 

(4) 

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6. Infinite number of bodies, each of mass 2 kg are situated on x-axis at distance 1 m, 2 m, 4 m, 8 m, . . . , respectively, from the origin. The resulting gravitational potential due to this system at the origin will be [NEET 2013]

(1) $-\frac{4}{3}$ G (2) − 4G (3) − G (4) $-\frac{8}{3}$ G

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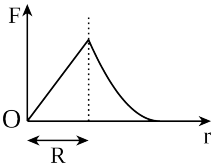
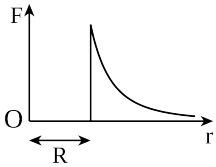
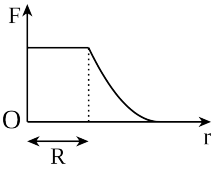
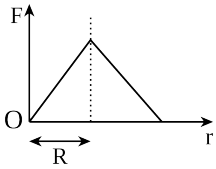
7. Which one of the following plots represents the variation of gravitational field on a particle with distance r due to a thin spherical shell of radius R? (r is measured from the centre of the spherical shell) [AIPMT 2012 (Mains)]

(1) 

(2) 

(3) 

(4) 

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8. A particle of mass M is situated at the centre of a spherical shell of same mass and radius a. The magnitude of the gravitational potential at a point situated at $\frac{a}{2}$ distance from the centre, will be : [AIPMT 2011 (Mains)]

(1) $\frac{GM}{a}$ (2) $\frac{2GM}{a}$ (3) $\frac{3GM}{a}$ (4) $\frac{4GM}{a}$

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9. A particle of mass M is situated at the centre of a spherical shell of same mass and radius a. The magnitude of the gravitational potential at a point situated at a/2 distance from the centre, will be :

[AIPMT 2010 (Prelims)]

(1) $\frac{GM}{a}$ (2) $\frac{2GM}{a}$ (3) $\frac{3GM}{a}$ (4) $\frac{4GM}{a}$

Scan or tap for the full solution

ANSWER KEY

Ques.	1	2	3	4	5	6	7	8	9		
Ans.	**2**	**2**	**4**	**3**	**1**	**2**	**2**	**3**	**3**		