

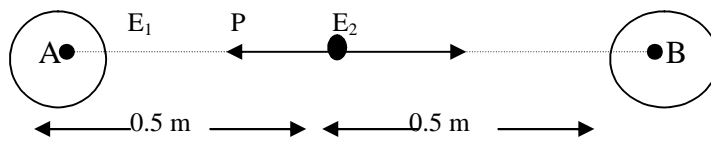
1 Mark Type

- Q1. Name the weakest and the strongest force in nature.
- Q2. Show graphically how 'g' varies as you move from the center of earth to great heights above the surface.
- Q3. What is 1 kg – wt? Q4. What do you mean by (i) escape velocity and (ii) orbital velocity?
- Q5. If it is safe to jump from a height of 2 m on the surface of earth, what is its value on the surface of moon?
- Q6. What is a geostationary satellite? Is it same as geo-synchronous satellite?
- Q7. Two artificial satellites, one close to the surface and other away are revolving around the earth, which as larger speed?
- Q8. What would happen if gravity suddenly disappears?
- Q9. If earth be at one half its present distance from the sun, how many days will there be in a year?
- Q10. Why is gravitational potential energy of a body negative $\left(\frac{-Gmn}{r} \right)$?

- Q11. A small mass is released by an astronaut in a satellite in space. will it fall on the earth?
- Q12. The acceleration due to gravity at moon's surface is 1.67 ms^{-2} . If radius of moon is $1.74 \times 10^6 \text{ m}$. Cal. mass of the moon.

2/3 marks type

- Q13. A body weighs 90 Kgf on surface of earth. How much will it weigh on surface of mars whose mass is $1/9$ & radius is $1/2$ of that of earth? Q14. Discuss the variation of "g" with altitude.
- Q15. At what ht from surface of earth, will value of g be reduced by 36% from value at surface? Radius of earth = 6400 Km.
- Q16. Two heavy spheres each of mass 100 Kg. and radius 0.1m are placed 1.0 m apart on a horizontal table. What is the gravitational field and potential at the mid –pt of the line joining the centres of the spheres?



- Q17. State Newton's law of gravitation in vector form. Q.18. State the Kepler's laws of planetary motion.
- Q19. The value of 'g' at the moon is $1/6^{\text{th}}$ of the value of g at the surface of the earth, and the diameter of the moon is $1/4^{\text{th}}$ of the diameter of the earth compare the ratio of the escape velocities.
- Q20. The radii of 2 planets are R & 2R respectively and their densities P & P/2 respectively. What is ratio of 'g' at their surfaces?
- Q21. Deduce Newton's law of gravitation from Kepler's law.
- Q22. If a planet existed whose mass & radius were both $1/2$ those of earth, what would be value of 'g' on its surface as compared to what it is on earth's surface. Q23. The Kinetic energy associated with a satellite is E. What is total energy associated?
- Q24. How far above the earth's surface does the value of 'g' becomes 20% of its value on the surface?
- Q25. Jupiter has mass 318 times that of earth & its radius is 11.2 times the earth's radius. estimate escape velocity of a body from Jupiter's surface. Given escape velocity from earth's surface is 11.2 m/s. Q26. Explain how a satellite is launched?
- Q27. An artificial satellite is going round earth, close to its surface. What is time taken by it to complete 1 round?
- Q28. Write down uses of polar satellite.
- Q29. A Saturn year is 29.5 times earth year. How far Saturn is from sun if earth is $1.50 \times 10^8 \text{ m}$ away from sun?
- Q30. Distances of 2 planets from sun are 10^{13} m & 10^{12} m respectively. Find ratio of time periods and speeds of the two planets.