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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?

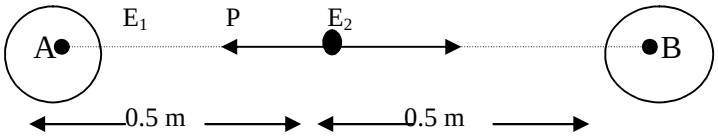
Q12. The acceleration due to gravity at moon's surface is 1.67 ms^{-2}. If radius of moon is 1.74 x 10^6 m. Cal. mass of the moon.

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 ½ 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 $1/6^{th}$ of the value of g at the surface of the earth, and the diameter of the moon is $1/4^{th}$ 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 composed 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 x 10^8 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.

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