PYRAMID CLASSES®

CLASS IX SCIENCE TEST ON GRAVITATION

TIME : 1 HR.   **M.M. : 30**

1. State the principle of flotation. **1**

2. What happens to the gravitationalforce between two objects when the distance between them is : **i.** doubled? **ii.** halved? **1**

3. A piece of steel has a volume of 12 cm^3, and a mass of 96 g. What is its density? **1**

4. State the universal law of gravitation. **2**

5. What is the force of gravity on a body of mass 150 kg lying on the surface of the earth? (Mass of earth = 6×10^{24} kg; Radius of earth = 6.4×10^6 m; G = 6.7×10^{-11} Nm^2/kg^2). **2**

6. A stone and the earth attract each other with an equal and opposite force. Why then we are only the stone falling towards the earth but not the earth rising towards the stone? **2**

7. Calculate the acceleration due to gravity on the surface of a satellite having a mass of 7.4×10^{22} kg and a radius of 1.74×10^6 m (G = 6.7×10^{-11} Nm^2/kg^2).**2**

8. An object has mass of 20 kg on earth. What will be its (i) mass, and (ii) weight, on the moon? (g on moon = 1.6 m/s^2). **2**

9. Explain why, school bags are provided with wide straps to carry them. **2**

10. State Archimedes' principle. **2**

11. A stone is dropped from a height of 20 m.

    i. How long will it take to reach the ground?**ii.** What will be its speed when it hits the ground? (g = 10 m/s^2) **3**

12. Define relative density. What is the SI unit of relative density? **3**

13. When a cricket ball is thrown vertically upwards, it reaches a maximum height of 5 metres.

    a. What was the initial speed of the ball?

    b. How much time is taken by the ball to reach the highest point? (g = 10 m/s^2). **3**

14. Write the differences between mass and weight of an object. **4**