

## QUESTIONS

### VERY SHORT ANSWERS QUESTION

1. State the universal law of gravitation.
2. Write the formula to find the magnitude of the gravitational force between the earth and an object on the surface of the earth.
3. Is value of  $G$  constant at all the places ?
4. What is the weight of an object of mass 1 kg ? **Ans : 9.8N**
5. A body has weight of 10 kg on the surface of earth. What will be its weight when taken to the centre of the earth ? **Ans : 0**
6. What is the value of gravitational acceleration acting on a free falling object ?

### SHORT ANSWERS QUESTION

1. What is the value of universal constant  $G$  and its unit ?
2. Why do pin sinks in water ?
3. Name a factor on which  $g$  depends.
4. Name the balance used to measure weight of an object.
5. Mass of an object is 1600 gm on the earth. What is its mass on the moon? Why ? **Ans : 1600 gm**
6. Two objects placed in a room, are not pulling each other. Why ?
7. Name the force responsible for the motion of moon around the earth. How can some objects move around the earth ?

### LONG ANSWERS QUESTION

14. State Archimedes' Principle and explain it with example.
15. State two factors on which buoyant force depends.
16. Density of aluminium is  $2700 \text{ kg m}^{-3}$ . What is its relative density ? Density of water is  $1000 \text{ kg m}^{-3}$ . Define relative density. **Ans : 2.7**
17. A ball is released from a height of 1 metre. What time it will take to reach the surface of the earth ? **Ans : 0.45 s**
18. A ball thrown up, vertically returns to the thrower after 6 s. Find :
  - (a) the velocity with which it was thrown up. **Ans : 29.4 m/s**
  - (b) the maximum height it reaches and **Ans : 4.9 m**
  - (c) its position after 4 s. **Ans : 39.2 m**

## OBJECTIVE TYPE QUESTIONS

### MCQ.

- A weightless balloon contains 200g of water. Its weight in water will be.**  
(a) 100g.                      (b) 200g.                      (c) 400g.                      (d) Zero.
- Archimedes Principle holds for**  
(a) liquids only                      (b) Gases only  
(c) liquids and gases both                      (d) may go anywhere.
- The unit of relative density is**  
(a)  $\text{Kgm}^{-3}$                       (b)  $\text{gcm}^{-3}$                       (c)  $\text{gl}^{-1}$                       (d) no unit
- The relative density of a solid is 0.6. It floats in water with.**  
(a) 40% of its volume inside water                      (b) 60% of its volume  
(c) whole of its volume inside water                      (d) any fraction of its volume inside a water
- The pressase exeated by man on earth is minimum when he**  
(a) Site                      (b) Stands on one foot  
(c) Stands M both feet                      (d) lies on ground.
- If mass of a body is M on the earth surface, then the mass of the somebody on the moon's surface is:**  
(a)  $M/6$                       (b) Zero                      (c) M                      (d) None
- If a planet existed whose mass and radies were both half to these of the earth, the acceleration due to granite at its surface world be.**  
(a)  $19.6\text{ms}^{-2}$                       (b)  $4.9\text{ms}^{-1}$                       (c)  $2.45\text{ms}^{-2}$                       (d)  $9.8\text{ms}^{-2}$
- The graritational force between two bodies does not depend on**  
(a) Their Separation                      (b) Their masses  
(c) The product of their masses.                      (d) The medium between the two bodies.

### 9. Match the coloumn

Column I	Column II
(a) Gravitational Const.)	(i) $F = \frac{mg}{2}$
(b) Acceleration due to gravity at earth's surgace (g).	(ii) $F = \frac{mg}{4}$
(c) Acceleration due to gravity at depth Centre	(iii) $6.67 \times 10^{-11} \text{Nm}^2 \text{kg}^{-2}$
(d) Force one a particle of mass 'm' placed at depth $r/2$ imlide the earth	(iv) Zero
(e) Force on a particle of mass 'm' placed at height equal to raduis of earth.	(v) $9.8\text{ms}^{-2}$