Gravitation

- 1. Two objects of different masses falling freely near the surface of the moon would
 - (a) have same velocities at any instant
 - (b) have different acceleration
 - (c) experience forces of same magnitude
 - (d) undergo a change in their inertia
- 2. The value of acceleration due to gravity
 - (a) is same on equator and poles
 - (b) is least on poles
 - (c) is least on equator
 - (d) increases from pole to equator
- 3. The gravitational force between two objects is F. If masses of both objects are halved without changing the distance between them, then the gravitational force would become
 - (a) F/4
 - (b) F/2
 - (c) F
 - (d) 2F
- 4. Law of gravitation gives the gravitational force between
 - (a) the Earth and a point mass only
 - (b) the Earth and Sun only
 - (c) any two bodies having some mass
 - (d) two charged bodies only
- 5. The value of quantity G in the law of gravitation
 - (a) depends on mass of Earth only
 - (b) depends on radius of Earth only
 - (c) depends on both mass and radius of Earth
 - (d) is independent of mass and radius of the Earth
- 6. Two particles are placed at some distance. If the mass of each of the two particles is doubled, keeping the distance between them unchanged, the value of gravitational force between them will be
 - (a) 1/4 times
 - (b) 4 times

(c) 1/2 times(d) unchanged

- 7. The atmosphere is held to the Earth by
 - (a) gravity
 - (b) wind
 - (c) clouds
 - (d) Earth's magnetic field
- 8. The force of attraction between two unit point masses separated by a unit distance is called
 - (a) gravitational potential
 - (b) acceleration due to gravity
 - (c) gravitational field
 - (d) universal gravitational constant
- 9. An object weighs 10 N in air. When immersed fully in water, it weighs only 8 N. The weight of the liquid displaced by the object will be
 - (a) 2 N
 - (b) 8 N
 - (c) 10 N
 - (d) 12 N
- 10.An apple falls from a tree because of gravitational attractionbetween the Earth and the apple. If F_1 is the magnitude of force exerted by the Earth on the apple and F_2 is the magnitude of force exerted by the apple on the Earth, then
 - (a) F_1 is very much greater than F_2
 - (b) F_2 is very much greater than F_1
 - (c) F_1 is only a little greater than F_2
 - (d) F₁ and F₁ are equal
- 11. When a ship floats in sea water
 - (a) The weight of water displaced is greater than the weight of ship
 - (b) The weight of water displaced is less than the weight of the ship
 - (c) The weight of water displaced is equal to the weight of the ship
 - (d) It displaces no water.
- 12. The SI unit of pressure is
 - (a) Nm²

- (b) N/m
- (c) N/m^2
- (d) N^2/m^2
- 13. If the gravitational attraction of the Earth suddenly disappears, which of the following statements will be true?
 - (a) The weight of body will become zero but the mass will remain same.
 - (b) The weight of a body will remain same but the mass will become zero.
 - (c) Both mass and weight become zero.
 - (d) Neither mass nor weight becomes zero.
- 14. A stone is released from the top of a tower of height 19.6 m. Then its final velocity just before touching the ground will be:

(Take g = 9.8 m/s²) (a) 384.16 m/s (b) 196 m/s (c) 19.6 m/s (d) 3841.4 m/s

15. A ball weighing 4 kg of density 4000 kgm⁻³ is completely immersed in water of density10³ kgm⁻³. What will be the buoyant force acting on it?

- (a) 100 N (b) 10 N (c) 1600N
- (d) 16 N

Answers key

- 1.(a) 2.(c) 3.(a) 4.(c) 5.(d) 6.(b) 7.(a) 8.(d) 9.(a) 10.(d)
- 11.(c) 12.(c) 13.(a) 14.(c) 15.(b) 16.() 17.() 18.() 19.() 20.()