

Chapter-3

Worksheet-2

Section 1

- Q1. Why is 'G' called the universal gravitational constant?
- Q2. At what place on the earth's surface is the weight of a body minimum and Why?
- Q3. If the mass of a body is 9.8 kg on the earth, what would be its mass on the moon?
- Q4. Define the standard kilogram.
- Q5. Suppose gravity of earth suddenly becomes zero, then which direction will the moon begin to move if no other celestial body affects it?
- Q6. The earth is acted upon by gravitation of sun, even though it does not fall into the sun. Why?
- Q7. The earth attracts an apple. Does the apple also attract the earth? If it does, why does the earth not move towards the apple?
- Q8. Mention any four phenomena that the universal law of gravitation was able to explain.
- Q9. Why does a body reach the ground quicker at poles than at the equator when dropped from the same height?
- Q10. What is the source of centripetal force that a planet requires to revolve around the sun? On what factors does that force depend?

Section 2

- Q11. 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:

- a) 384.16 m/ s
- b) 196 m/s
- c) 19.6 m/s
- d) 3841.6 m/s

Answer: c

Q12. When a piece of cork is put into the water it starts floating on the surface of water due to the upward buoyant force from water. If the cork is pushed more inside the water by applying the force than the buoyant force:

- a) Will increase as the cork is immersed into the water
- b) Will decrease as the cork is immersed into the water
- c) Will first increase and then decrease as the cork is immersed more into the water
- d) Will remain the same as long as the cork is inside the water

Answer: a

Q13. A rectangular wooden block has the length, breadth and height of 40 cm, 35 cm and 10 cm, respectively. This wooden block is kept on ground in three different ways, turn by turn. Which of the following is the correct statement about the pressure exerted by this block on the ground?

- a) The maximum pressure is exerted when the length and breadth form the base
- b) The maximum pressure is exerted when the length and height form the base
- c) The maximum pressure is exerted when the breadth and height form the base
- d) The maximum pressure is exerted when the length and height form the base

Answer: c

Q14. 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

Answer: b

Q15. A ball weighing 4 kg of density 4000 kgm^{-3} is completely immersed in water of density 10^3 kgm^{-3} . What will be the buoyant force acting on it?

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

Answer: b

Q16. Choose the correct unit for the relative density among the following

- a) Kg/cm
- b) unit less
- c) kg/cm
- d) kg/m^3

Answer: b

Q17. An object having mass equal to 350 g occupies 200 cm^3 of the space. When this object is thrown into a river what will be the condition of this object there?

- a) It will float on the surface of water
- b) It will float fully submerged in the liquid
- c) It will sink in the liquid
- d) It will float partially submerged in the liquid

Answer: c

Q18. The school bags are generally provided with the broad strips because:

- a) It will spread the force of the bag over the large area of the shoulder of the child producing large pressure
- b) It will spread the force of the bag over the large area of the shoulder of the child producing less pressure
- c) It has become a trend among the students to carry the bags with wide strips
- d) It will spread the force of the bag over the small area of the shoulder of the child producing less pressure

Answer: b

Q19. The acceleration due to gravity on the Earth depends upon the

- a) mass of the body
- b) mass of the Earth
- c) shape and size of the body
- d) volume of the body

Answer: b

Q20. 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.

Answer: c