# INTERNATIONAL INDIAN SCHOOL – BURAIDAH

## Worksheet for the Academic Year 2025 - 2026

Class:9 GRAVITATON Subject: PHYSICS

SET: 1

1.What is the gravitational force between two objects?

a. attractive at large distances only b. attractive at small distances only

c. attractive at all distances d. attractive at large distances but repulsive at small distances

2. The ball is thrown up, the value of 'g' will be

a. Zero b. positive c. negative d. negligible

3. The gravitational force between two objects is F. If masses of both the objects are halved without altering the distance between them, then the gravitational force would become

a. f/4 b. f/2 c. f d. 2f

4. The distance between two bodies becomes 6 times more than the usual distance. The F becomes

a. 36 times b. 6 times c. 12 times d . 1/36 times

5. The mass of the body on moon is 40kg, what is the weight on the earth.

a. 240kg b. 392N c. 240N d. 400kg

6. The force which keeps the body to move in circular motion when accelerated is

(a) Centripetal force (b) Magnetic force (c) Electrostatic force (d) Force of gravitation

7. The value of acceleration due to gravity on the surface of the earth at sea level is

(a) 4.9 m/s2 (b) 6 m/s2 (c) 8 m/s2 (d) 9.8 m/s2

8. 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) 3841.4 m/s

9. In the polar regions, the value of acceleration due to gravity

(a) is same as at the equator (b) Is more than at the equator (c) Is less than at the equator (d) zero

10.The expression for finding the gravitational force of attraction between any two bodies is

(a) F= Gm1 m2/r (b) F= Gm1 m2/r2 (c) F= Gm1 /r2 (d) F= Gm1 m2/r3

SET :2

1. The force acting normally on a surface is called:

a) Pressure b) Thrust c) Buoyant force d) Gravitational force

2. The SI unit of pressure is:

a) N b) $N/m^2$ c) $N \cdot m^2$ d) Pa/s

3. Pressure = ?

a) Thrust × Area  b) Thrust / Area  c) Area / Thrust  d) Force × Distance

4. If the area of contact decreases, the pressure:

a) Increases  b) Decreases  c) Remains same  d) Becomes zero

5. A sharp knife cuts better than a blunt one because:

a) It is heavier  b) It has more area  c) It has less area, so pressure is more  d) It is longer

4. The upward force exerted by a liquid on an object immersed in it is called:

a) Thrust  b) Pressure  C) Buoyant force  d) Gravitational force

5. Buoyant force acts:

a) Downwards  b) Sideways c) Upwards  d) In all directions

6. Buoyant force depends on:

a) Volume of the liquid displaced  b) Density of the liquid  C) Gravitational acceleration  D) All of the above

7. Archimedes' Principle states that:

A) The weight of a body in air is equal to its weight in water

B) The buoyant force on a body is equal to the weight of the liquid displaced

C) Pressure in a liquid acts in all directions

D) Liquids exert pressure only downwards

Q8. A body will float in water if:

A) Its density is more than that of water  B) Its density is equal to that of water

C) Its density is less than that of water  D) It is hollow

Q9. When a solid body is completely immersed in a liquid, the loss in weight is equal to:

A) Weight of body in air  B) Volume of liquid displaced

C) Weight of liquid displaced  D) Density of liquid

Q10. Archimedes' principle is used in designing:

A) Clocks  B) Ships and submarines  C) Airplanes  D) Cranes

ANSWER THE FOLLOWING:

1. .State the universal law of gravitation
2. What are the differences between the mass of an object and its weight?
3. What do you mean by free fall?
4. How does the force of gravitation between two objects change when the distance between them is reduced to half?
5. The earth and the moon are attracted to each other by gravitational force. Does the earth attract the moon with a force that is greater or smaller or the same as the force with which the moon attracts the earth? Why?
6. What is the acceleration of free fall?
7. A stone is released from the top of a tower of height 19.6m. Calculate its final velocity just before touching the ground.

8. A ball thrown up vertically returns to the thrower after 6 s. find (a) The velocity with which it was thrown up, (b) The maximum height it reaches, and (c) Its position after 4s.
9. In what direction does the buoyant force on an object immersed in a liquid act?
10. Why a block of plastic when released under water come up to the surface of water?
11. What do you mean by buoyancy?
12. You find your mass to be 42 kg on a weighing machine. Is your mass more or less than 42 kg?
13. Define Archimedes' principle.
14. The volume of 50 g of a substance is 20 $cm^3$. If the density of water is 1 g $cm^{-3}$, will the substance float or sink?
15. The volume of a 500 g sealed packet is 350 $cm^3$. Will the packet float or sink in water if the density of water is 1 g cm–3? What will be the mass of the water displaced by this packet?