



INDIAN SCHOOL MUSCAT
DEPARTMENT OF PHYSICS
CLASS IX WORK SHEET: 3
GRAVITATION

Conceptual Questions

1.	Which force is responsible for the moon revolving round the earth? What would happen if there is no such force?	1
2.	Write any two applications of Archimedes' principle.	1
3.	Two balls of different masses are thrown vertically upwards with same initial speed. Which one of them will rise to the greater height?	1
4.	What is the condition for an object to float or sink in a liquid?	1
5.	Give reason for the following (i) school bags have broad straps (ii) needles have sharp edges	
6.	What happens to the force of attraction between two objects when (i) Their mass are halved? (ii) Distance between them is increased to 4 times its previous value. (iii) Distance between them as well as each of the mass is increase to 4 times	2
7.	Why are railway tracks laid on large sized concrete sleepers? Explain.	2
8.	Define Relative density. State its S.I. unit. Relative density of an object is 1.35 . Will it float or sink in water?	2
9.	A ship made of iron floats on water but an iron needle sinks. Explain why.	2
10.	Write the factors on which the buoyant force on a body immersed in a liquid depends	2
11.	Give reason: (a) moon does not have atmosphere (b) if you jump on the moon , you will rise much higher than if you jump on the earth.	2
12.	What is the importance of Newton's law of gravitation? According to Newton's law of gravitation, the apple and the earth experience equal and opposite forces due to gravitation. But it is the apple that falls towards the earth and not vice – versa. Why?	3

Numericals

13.	The weight of an object on the earths surface is 100 N .Find its (a) mass on the earth (b) mass and weight on the moon	2
14.	The volume of a bag of mass 1250 g is 150 cm ³ . If the density of water is 1 g/cm ³ , will this substance float or sink in water?	2
15.	An object is thrown vertically upwards and rises to a height of 10 m. Calculate the velocity with which the object was thrown upwards? Take $g=9.8 \text{ m/s}^2$	2

16.	Calculate the gravitational force between a 10 kg ball and a 20 kg ball placed at a separation of 5m.	2
17.	A ball is dropped from the roof of a building. It takes 10 s to reach the ground. Find the height of the building.	3
18.	A stone is thrown vertically upwards with a velocity of 40 m/s and is caught at the point of projection. Taking $g = 10 \text{ m/s}^2$, calculate the maximum height reached by the stone.	3
19.	A solid cube of dimension 50 cm \times 50 cm \times 50 cm and having a weight of 25 N is placed on a table. Calculate the pressure exerted on the table.	3
20.	A stone is released from the top of a tower of height 50 m. Calculate its final velocity just before touching the ground.	3