CBSE

GRAVITATION WS 6

Class 09 - Science

Section A

1. A heavy cylinder of length 1 is slowly taken out of a dense liquid. The weight felt as it is taken out of the liquid **[1]**

   a) increases till it attains the weight in air
   b) decreases as it comes out
   c) increases as it comes out
   d) will remain the same

2. The physical quantity in which apparent loss is observed when a solid object is immersed in water. **[1]**

   a) Volume
   b) Density
   c) Mass
   d) Weight

3. A given solid is weighted in air using a spring balance. It is then weighed separately by immersing it fully first in vessel containing tap water and then in a vessel containing salt solution. The reading of the spring balance would be: **[1]**

   a) least in water
   b) equal in all the three cases
   c) least in air
   d) least in salt solution

4. An object floats in water such that $\frac{1}{4}th$ its volume is above the surface of water. When the same object is made to float in a sample of impure alcohol, that volume that remains outside the liquid is $\frac{1}{10}$ total volume. The relative density of the sample of alcohol will be **[1]**

   a) 8.3
   b) 0.083
   c) 83
   d) 0.83

5. If we want to determine the volume of a solid by immersing it in water, the solid should be **[1]**

   a) heavier than water and insoluble in it
   b) lighter than water
   c) heavier than water
   d) insoluble in water

6. A student lowers a body in a liquid filled in a container. He finds that there is a maximum apparent loss in weight of the body when: **[1]**

   a) it is partially immersed and also touches the sides of the container.
   b) it is partially immersed in the liquid.
   c) it just touches the surface of the liquid.
   d) it is completely immersed in the liquid.

7. While performing an experiment a solid was immersed fully in water and it was observed that the solid has suffered an apparent loss in its weight. This apparent loss in weight of the solid must be equal to the: **[1]**

   a) weight of water displaced by the solid
   b) weight of the solid in water
   c) weight of the solid in air
   d) weight of water filled in the vessel

8. The density of tap water is less than that of sea water. If an object is immersed completely in both one by one, its loss in weight will be : **[1]**

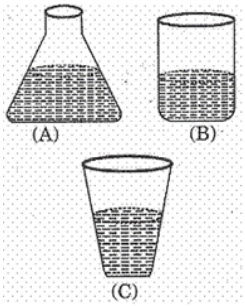
a) Zero in sea water but not so in tap water.
b) More in sea water.
c) Equal in the two cases.
d) Less in sea water.

9. **Assertion (A):** When a piece of cork is held below the surface of the water by applying the force of our thumb and then released, the cork immediately rises to the surface. **[1]**

Reason (R): The upward force is exerted by water on the cork which pushes it to the surface.

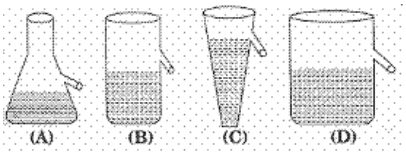
a) Both A and R are true and R is the correct explanation of A.
b) Both A and R are true but R is not the correct explanation of A.
c) A is true but R is false.
d) A is false but R is true.

10. Three students used three different containers (A) (B) and (C) of different shapes, for finding the loss in weight of solid when dipped in water. On dipping a solid sphere in these containers they would observe that the loss in weight is: **[1]**



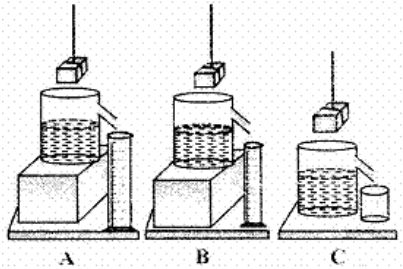
a) Minimum in [A]
b) Maximum in [A]
c) Maximum in [B]
d) Same in all

11. Four students A, B, C and D while performing an experiment on establishing the relation between the loss of weight of small solid when fully immersed in tap water, and the weight of water displaced by it, used four different shapes of overflow cans containing water as shown :The arrangement, that would given correct results is that of student: **[1]**



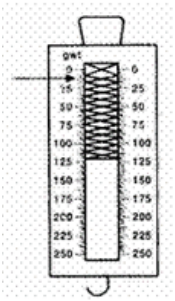
a) A
b) D
c) B
d) C

12. Three students A, B and C determined the volume of a solid by immersing it in water in the overflow cans are set up as shown. The result obtained will be wrong for : **[1]**



a) Student A
b) All of these
c) Student B
d) Student C

13. In the following figure the zero error is: **[1]**



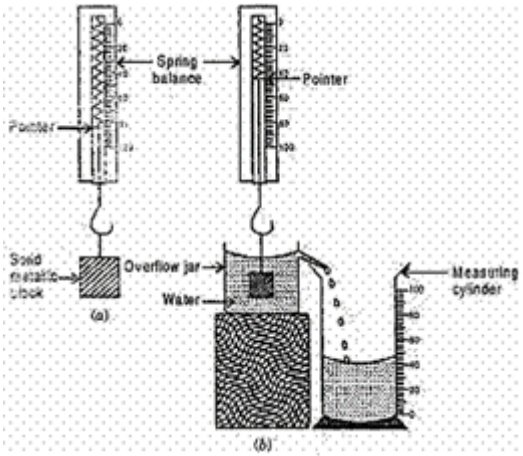
a) 5 gwt

b) – 5 gwt

c) 2 gwt

d) – 2 gwt

14. For performing an experiment to verify Archimedes principle, a student used a spring balance with a zero error of 4 g wt. He used to measure the weight of a solid metallic block as shown in the figure below. The solid metallic block was then lowered in water contained in an overflowing jar and the water displaced by this block was collected in graduated or measuring cylinder as shown in figure. **[1]**



The apparent loss in weight of the solid metallic block is :

a) 38 g wt

b) 35 g wt

c) 40 g wt

d) 30 g wt

15. Lactometer is used to measure _____ of _____. **[1]**

a) purity, milk

b) density, milk

c) purity, water

d) milk, water

16. A hydrometer sinks _____ in water than in pure milk. **[1]**

a) soft

b) less

c) hard

d) more

17. You find your mass to be 42 kg on a weighing machine. Is your mass more or less than 42 kg? **[1]**

18. State Archimedes Principle. **[1]**

Section B

19. **State True or False:** **[2]**

(a) Archimedes' Principle states that the buoyant force acting on an object is equal to the weight of the fluid displaced by that object. **[1]**

(b) An object with density more than the liquid floats on the liquid. **[1]**

20. **Fill in the blanks:** **[2]**

(a) When an object is partially or wholly immersed in a fluid, an upward force acts on it, which is called **[1]**

_____.

(b) An object with a density less than the liquid _____ on the liquid. **[1]**

21. You have a bag of cotton and an iron bar, each indicating a mass of 100 kg when measured on a weighing machine. In reality, one is heavier than other. Can you say which one is heavier and why? **[2]**