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A student uses a spring balance of least count 10 gwt and range 500 gwt. He records the weight of a small iron cube in air, in tap water and in a concentrated solution of common salt in water. If his three readings taken in this order are W_1 , W_2 and W_3 he is likely to observe that;

- $W_1 > W_2 > W_3$ $W_1 > W_2 = W_3$ $W_1 = W_2 > W_3$
 $W_1 = W_2 = W_3$

6

In order to find out the loss of weight in a liquid, the student has to immerse the body :

- partly completely in salted water only To $\frac{1}{4}$ th of its volume

7

When a body is fully or partly immersed in a liquid, it undergoes as apparent loss in its weight due to :

- Decrease in its volume Decrease in the density of the body
 Upward thrust exerted by the liquid Decrease in its mass

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A body floats in a liquid :

- When the weight of the body is exactly half of the weight of the liquid displaced.
 When the weight of body is greater than the weight of the liquid displaced.
 When weight of body is equal to the weight if the liquid displaced.
 When weight of body is less than the weight of the liquid displaced.

9

When a body is immersed in a liquid, the buoyant force acts on the body :

- Vertically upwards Vertically downwards
 Sideways towards the walls of the container None of the above

10

The pressure exerted by a solid decrease with increase of :

- force area momentum velocity

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The loss in weight of a solid is more in salty solution than water because

- Density of water and salty solution is same
- Density of water is less than salty solution
- Density of water is more than salty solution
- Densities can't be compared

12

Which of the following is not unit of pressure?

- pascal
- N/m
- bar
- N/m^2

13

The same body is immersed in two liquids A and B in succession. The extent to which the body sinks in liquid B is less than in liquid A. what are the conclusions that could be derived from such an observation.

- The density of liquid B is more than A
- The density of liquid A is more than B
- No such conclusion can be made
- The density of solid is less than the liquid in both

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Choose the incorrect statement

- For constant mass, if volume increase density decreases
- For constant volume, if mass increase density also increase
- thrust is the force acting normal to the surface
- none

15

Up thrust depends upon

- Volume of liquid displaced
- density
- 'g'
- all of these

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When ice floating in water melts, the level of water in container

- rises
- remains unchanged
- decrease
- cannot conclude

17

A jet plane flies in air because :

- Streamlined flow of air causing lift
- Upward thrust of air balance its weight
- No gravity acts on plane
- None of these

25

An object of mass 10 kg is placed on a table then the pressure exerted by this object on the table if it occupies area 2 m^2 is

- 20 pa 100 pa 49 pa 10 pa

26

For sinking of a body (d_b = density of a body, d_l = density of fluid)

- $d_b < d_l$ $d_b > d_l$ $d_b = d_l$ none

27

As the depth from the free surface of a liquid increase, the pressure exerted by the liquid

- decreases increases remain same no relationship

28

To observe and compare the pressure exerted by the solid iron cuboid on sand two students take the different iron cuboid having the same weight but different dimensions. After performing the experiment.

- Same conclusion is drawn by them Different conclusions are drawn by them
 None of the students drawn any conclusion
 Conclusion can be drawn by making the dimension same

29

The density of water in kg/m^3 is ____.

- 10^2 10^3 10^4 10^1

30

The density of ice in kg/m^3 is ____.

- 9.2×10^2 9.2×10^3 9.2×10^4 9.2×10^1

31

The mass of the 500 cc liquid is 1 kg, then find its density.

- 3 g/cc 2 g/cc 1.5 g/cc 1 g/cc

32

1 atmospheric pressure value at sea level is

- $1.013 \times 10^3 \text{ N/m}^2$ $1.013 \times 10^4 \text{ N/m}^2$ $1.013 \times 10^5 \text{ N/m}^2$
 $1.013 \times 10^6 \text{ N/m}^2$

33

The density of a substance is 0.75 g/cc. Find its density value in S.I system.

- 700 kg/m^3 600 kg/m^3 650 kg/m^3 750 kg/m^3

34

Hydraulic machines are working based on

- Pascal's law Laws of floatation Archimedes's principle None of the above

35

Find the relative density of the substance whose density is 0.45 g/cc.

- 0.45 0.35 0.55 0.65

36

Find the density of the substance whose relative density is 0.8.

- 0.6 g/cc 0.8 g/cc 0.4 g/cc 0.5 g/cc

37

Equal volumes of two substances whose densities are d_1 and d_2 are mixed homogeneously. Find the density of the mixture.

- $\frac{d_1 - d_2}{2}$ $\frac{d_1 + d_2}{2}$ $d_1 + d_2$ $\frac{2d_1 d_2}{d_1 + d_2}$

38

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39

The density of a substance is 1.2 g/cc. Find the volume occupied by 0.6

kg substance.

- 300 cc 400 cc 500 cc 600 cc

40

The density of a substance is 0.7 g/cc. Find the mass of the substance occupied in 200 cc.

- 120 g 130 g 140 g 150 g

41

Find the mass of liquid of 2 liter volume whose density is 2 g/cc.

- 4 kg 3 kg 6 kg 8 kg

42

Two substances of equal volumes with individual densities $3d$ and $5d$ are mixed homogeneously then the effective density of the mixture is

- d $2d$ $3d$ $4d$

43

If density of object floating in the liquid is half of the density of liquid then

- object just completely immersed object sinks in liquid
 object is half immersed in liquid object wholly floats above the liquid surface

44

Among the following which is not example of fluid

- milk carbon dioxide stone mercury

45

Find mass of the substance containing in a volume of 800 cc whose specific gravity is 0.75.

- 300 g 400g 600 g 500 g

46

1 liter substance of density 3 g/cc is mixed homogeneously with 3 liter another substance of density 2 g/cc. Find the density of the mixture.

- 2.15 2.35 2.25 2.30

47

3 liter substance of density 2 g/cc is mixed homogeneously with 5 liter another substance of density 4 g/cc. Find the density of the mixture.

- 1.25 2.25 3.25 4.25

48

A glass cuboidal has dimensions $10\text{ cm} \times 10\text{ cm} \times 4\text{ cm}$. it is kept with its perfect face ($10\text{ cm} \times 10\text{ cm}$) in contact with the table. If it is lifted and allowed to rest on the table With its smaller surface ($10\text{ cm} \times 4\text{ cm}$) in contact with the table the pressure exerted will:

- Increase Decrease Remain unchanged
 May increase or decrease depending on the shape of table

49

Four students A, B, C & D observed and compares the pressure exerted by three different faces of a metal cuboid of dimensions $20\text{ cm} \times 8\text{ cm} \times 4\text{ cm}$. They recorded their observations about the depressions observed by them in sand by different faces of the cuboid : choose the correct option.

- 'A' records that the depression is minimum when the face of dimension $20\text{ cm} \times 8\text{ cm}$ is in contact with sand.
 'B' records that the depression is minimum when the face of dimension $20\text{ cm} \times 4\text{ cm}$ is in contact with sand.
 'C' records that the depression is minimum when the face of dimension $8\text{ cm} \times 4\text{ cm}$ is in contact with sand.
 'D' records that depression is equal for all faces.

50

While comparing the pressure exerted by the three different faces of a metal cuboid of dimensions $10\text{ cm} \times 20\text{ cm} \times 30\text{ cm}$, which observation is correct?

- Pressure exerted by all faces is same
 Pressure exerted by the face 10×20 is maximum
 Pressure exerted by the face 10×30 is maximum
 Pressure exerted by the face 20×30 is maximum

57

The force on the bottom of a tank is 120 kg wt. If the Pressure is 12 pa, find the area.

- 10 m^2 100 m^2 5 m^2 50 m^2

58

Buoyant force exerted on an object immersed in a liquid arises due to

- repulsion of molecules in a liquid pressure difference at bottom and top
 force exerted by the liquid on sides of object none of these

59

When an object is floating in water then

- its apparent loss of weight is equal to buoyant force
 volume of object immersed is equals to volume of water displaced
 centre of buoyancy and cent re of gravity lie on the same line all of the above

60

A liquid of density 3 g/cc and column 10 cm exerts some pressure at bottom in a vessel then what should be the column of water taken in another vessel if it exerts same pressure like liquid

- 10 cm 20 cm 30 cm 40 cm

61

If water is present up to a height of 1 m in a closed tank find the pressure at the bottom. (Take $g = 980 \text{ cm/s}^2$)

- $9.8 \times 10^1 \text{ pa}$ $9.8 \times 10^2 \text{ pa}$ $9.8 \times 10^3 \text{ pa}$ $9.8 \times 10^4 \text{ pa}$

62

If mercury (density = 13.6 g/cc) height in a glass tube is 50 cm, then the pressure at the bottom of glass tube.(Take $g = 10 \text{ m/s}^2$)

- $6.8 \times 10^4 \text{ pa}$ $6.8 \times 10^3 \text{ pa}$ $6.8 \times 10^2 \text{ pa}$ $6.8 \times 10^1 \text{ pa}$

63

In a glass tube of height 1 m containing full of water let three points A, B, C are considered where A is at 10 cm from top, B is at 10 cm

from bottom and C is at middle of the height that is at centre of mass
conclude about pressure

- at A pressure is maximum at B pressure is maximum at C pressure is maximum
 at all points A,B and C pressure is same

64

A ball of density 12 g/cc mass 0.24 kg in air. Then the appearant loss of weight when the ball is half immersed in water.

- 10 g 20 g 15 g 30 g

65

A stone weighs 5 N in air, 4 N in water and 4.5 N in some other liquid.
The specific gravity of the liquid is

- 0.1 0.2 0.5 none

66

The weight of a body in air is 100 N. How much it will weigh in water, if it displaces 400 cc of water?(Take $g = 1000 \text{ cm/s}^2$)

- 90 N 92 N 94 N 96 N

67

Direction of buoyant force acted up on the body when it immersed in a liquid

- vertically downwards vertically upwards horizontally none

68

An object weighs 100 N in air, 80 N in liquid A and 60 N in liquid B when it immersed half in both liquids (different cases) then conclusion about liquids (object is insoluble in both liquids)

- density of liquid A is less than density of liquid B
 density of liquid B is less than density of liquid A Object immersed more in liquid A
 mass decreased in B

69

A ship going from river water to sea water then it

- rises slightly sinks slightly remains at same level none

70

1 kg cotton and iron are weighed in vacuum, then

- cotton will weigh more iron will weigh more cotton and iron will weigh same
 both have zero weight

71

The fraction of the volume of a body outside the water when it is immersed in water. The density of the body is 0.2 g/cc.

- $\frac{2}{3}$ $\frac{4}{3}$ $\frac{4}{5}$ $\frac{2}{5}$

72

A solid of density X is floating in a liquid of density Y . If V_0 is the volume of solid submerged in the liquid and V is the total volume of solid then $\frac{V_0}{V}$ is

- $\frac{X+Y}{Y}$ $\frac{X+Y}{X}$ $\frac{X}{Y}$ $\frac{Y}{X}$

73

A cube of side 18 cm floats in a fluid of density 1.2 g/cc. Find the length of the cube inside the fluid if its density is 1 g/cc.

- 18 cm 15 cm 10 cm 5 cm

74

statement A: Relative density has no units.
statement B: Relative density is the ratio of density of substance to density of water at $4^{\circ}C$.

- both A and B are true and B is correct explanation of A
 both A and B are false but B is not correct explanation of A A is true B is false
 A is false B is true

75

Which of the following statement is incorrect?

- The pressure in a liquid is same at all points at the same horizontal level.
 As we go deeper in a liquid pressure exerted by the liquid decreases.
 Buoyant force by liquid is dependent on density of liquid.
 Buoyant force by liquid is dependent on temperature.

76

A man is carrying bucket of water with one hand and a block with another hand after transferring the block to bucket (water does not flow out) which floats in it, then the man will carry

- less load as before same load as before more load as before
 either less or more load depending on the density of block

77

Match the following

| column - I | column - II |
|---------------------|---------------------|
| a) thrust | i) N/m^2 |
| b) relative density | ii) no units |
| c) pressure | iii) N |
| d) density | iv) kg/m^3 |

- a - i, b - ii, c - iv, d - iii a - iii, b - ii, c - i, d - iv
 a - iii, b - i, c - iv, d - ii a - iv, b - i, c - iii, d - ii

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