Physical Quantities and Measurements.

Q1 a) False d) True i) True
b) False e) False j) True
c) True f) False

Q2 a) 1000 e) 1000 i) equal
b) volume f) more j) zero
c) kgm^{-3} g) less
d) 1000 h) more

Q3) (a) - (iv)
(b) - (i)
(c) - (v)
(d) - (ii)
(e) - (iii)

Q4) a) Mass * = Density x volume
b) 800kg m^{-3}
c) 48g
d) The mass of a certain volume of brass is more than th mass of equal volume of alluminium.
e) The density bottle will store 25 ml of any liquid in i
f) The bouyant force of on a body is equal to the weig of the liquid displaced by it.
g) Equal to the weight of the wood piece.
h) Sink

B) Long / Short Question Answers.

1) "Mass Per unit volume".

2) SI unit of Density is $kg\ M^{-3}$ in CGS system unit of mass is g and unit of volume is CM^3, so CGS unit of Density is $g\ CM^3$

3) Cork, water, Iron, Beasts, Mercury.

4) This statement Means one cubic centimetre volume of brass has mass of 8.4g.

Q5) when a given quantity of liquid is heated ~~which~~
(a) Mass : does not change
(b) Volume : changes and increases with rise in temperature.
(c) Density : Changes and Decreases.
Density = M/v

Q10) Relative Density " is the ratio of density of a substance to the density of water at 4°c"

Q11) unit of Density = N

Q13) the statement "Relative Density" of Alluminium is 2.7" means a piece of alluminium of any volume has mass 2.7 times that of an equal volume of water. meaning alluminium is 2.7 times heavier than water.

Q14) The Body will float if density is less than density of liquid. Body will sink if density is ~~less~~ more than density of liquid.

Q15) Cork floats on water because density of cork is less than density of water. Iron nail sinks because density of iron nail is more than the density of water.

Q16) (a) 500 kg m^{-3}

(b) 8520 kg m^{-3}

(c) 1100 kg m^{-3}

(d) 0.85 kg m^3

~~Ans~~

Q18 (a) $7.8 \times 10^{-3} = \frac{7.8}{1000} = 0.0078 \text{ g cm}^{-3} < 1.0 \text{ g cm}^{-3}$

$\therefore$ Density of iron is less.

(b) Density of pelce of iron $= 7.8 \times 10^{-3}$
Density of mercury $= 13.6 \times 10^{-3}$ g cm^{-3}
Since $7.8 \times 10^{-3} < 13.6 \times 10^{-3}$
∴ Pelce of Iron will float.

Q.20) When a liquid body floats in a liquid. The weight of the liquid displaced by its immersed part is equal to the total weight of the body.

Q.21) Floatation of Ice on water:
Density of 0.9 g cm^{-3} is less than density of water 1g cm^{-3}. Hence Ice floats on water.

Q.24) Icebergs are very dangerous for ships as Icebergs are huge masses of Ice floating in sea. [density of ice being 0.917 g cm^{-3}]. with about 9/10 portion below water and only 1/10 portion of it above surface of wate

Q.25) In water, the stone experience to buoyant force which counter balances the weight of the stone acting downward and this makes the stone lighter and thus easier to lift the stone in water.

Numericals

Q1(a) The density of air is 1.28g / litre.

In gm/cm^3 = 1.28 / 0.00128

(b) $1.28 g/l = 1.28 / 100 \cdot 1000 = 1.28 gm/m^3$

Q 2) Dimensions of hall 10m x 7m x 5m ($V 350 m^3$)

Density of air (D) = $1.11 kg\ m^{-3}$

$M = V \times D\ 350 \times 1.11 = 388.5$ kg

Q3) Density of alluminium = $2.7 g/cm^3$

In $kg/m^3 = 27 \times 1000 / 100 = 2700 kg/m^3$

Q4) Density of alcohol = $600 kg/m^{-3}$

In $g/cm^3 = 600/1000 : 0.60/cm^3$

Q5) (M) zinc = 138.6g (V) = $86 cm^3$ (D) = ?

$D = M/V = 138.6/86 = 5.1 cm^3$

Q6) (M) Wood = 150g (V) = $200 cm^3$ (D) = ?

$D = M/V = 150/200 = 0.75/cm^3$