Q.1. *Define mass.*

Ans. *Quantity of matter in a body. Its unit is kgm.*

Q.2. *Define weight.*

Ans. *That gravitational force with which the earth attract a body towards the centre.*

Weight = mass × gravitational force.

Q.3. *Define density.*

Ans. *Mass per unit volume of a substance.*

$$\text{Density } (d) = \frac{\text{Mass } (m)}{\text{Volume } (v)}$$

Q.4. *Define specific gravity (Relative density).*

Ans. *Ratio between mass of unit volume of the substance and mass of unit volume of water at 4°C.*

Q.5. *State Archimedes principle.*

Ans. *Loss to weight in liquid is equal to the weight of fluid displaced.*

Q.6. *What is hydrometers ?*

Ans. *Instrument to find relative density of liquid or solid.*

Q.7. *How many types of hydrometer ?*

Ans. *(i) Common hydrometer*

(ii) Variable immersion hydrometer

(iii) Nicholson's hydrometer.

Q.8. *What do you understand by buoyancy ?*

Ans. *Resultant experience of upward thrust exerted on a substance when immersed in liquid.*

Q.9. *On what principle hydrometer works ?*

Ans. *Law of flotation.*

Q.10. *The unit of weight in S.I. unit is equal to...*

(a) 980 dyne *(b) 880 dyne*

(c) 780 dyne *(d) None of these.*

Q.11. *The unit of weight in S.I. unit is equal to ...*

(a) 8.9 N *(b) 9.8 N*

(c) 7.8 N *(d) None of these.*

Q.12. *What is the formula of density ?*

(a) $\frac{Mass}{Volume}$ *(b)* $\frac{Volume}{Mass}$

(c) Above both *(d) None of these.*

Q.13. *What is the unit of specific gravity ?*

(a) Newton *(b) Dyne*

(c) Above both *(d) None of these.*

Q.14. *Specific gravity of liquid is equal to ...*

(a) $\frac{Wt.\ of\ liquid\ in\ bottle\ (w_3 - w_1)}{Wt.\ of\ water\ in\ bottle\ (w_2 - w_1)}$ *(b)* $\frac{Wt.of\ water\ in\ bottle\ (w_2 - w_1)}{Wt.\ of\ liquid\ in\ bottle\ (w_3 - w_1)}$

(c) $\frac{Wt.\ of\ liquid\ (w_1)}{Wt.\ of\ water\ (w_2)}$ *(d) None of these.*

Q.15. *If weight of floating body is (w) and weight of liquid displaced by the body (w_1) is equal to each other then what is the position of a body ?*

(a) Sink *(b) Easly float*

(c) Hardly float *(d) Above all.*

Q.16. *According to above when body float in liquid if weight of the body in liquid (w) and weight of displaced liquid (w_1)*

(a) $w = w_1$ *(b)* $w > w_1$

(c) $w < w_1$ *(d) None of these.*

Q.17. *To find the specific gravity of liquid which instrument is used ?*

(a) Thermometer *(b) Hydrometer*

(c) Calorimeter *(d) Barometer.*

Q.18. *Find the volume of 136 gm of mercury, if specific gravity of mercury is 13.6 gm/cm³.*

(a) 0.1 cm^3 (b) 1.0 cm^3

(c) 10.0 cm^3 (d) 100 cm^3

$$\left[\textbf{Hint : } Volume = \frac{Mass}{Density}\right]$$

Q.19. *If volume of washer is 11088 cubic centimeter and density of body is 0.0089 gm/mm, then find mass of a body.*

(a) 98.683 gm (b) 986.83 gm

(c) 9.863 gm (d) 0.986 gm.

Q.20. *What is the formula of specific gravity, if weight of solid is (W_1) and weight of water (W_2) gm.*

(a) $\frac{W_1}{W_1 + W_2}$ (b) $\frac{W_1 + W_2}{W_2}$

(c) $\frac{W_1}{W_1 - W_2}$ (d) $\frac{W_1 - W_2}{W_1}$

Q.21. *Write formula of specific gravity for solid soluble in water, if weight of solid in air (W_1), weight of solid in liquid (W_2) and specific gravity of liquid (d).*

(Sheet Metal, Welder, Diesel Mech., Carpenter, Elect. Fiiter. – 2012 Mock Test)

(a) $\frac{W_1 - W_2}{D}$ (b) $\frac{W_1 + W_2}{D}$

(c) $\frac{W_1}{d(W_1 + W_2)}$ (d) $\frac{W_1}{d(W_1 - W_2)}$

Q.22. *What instrument is used to find the quantity of water in milk ?*

(a) Lactometer (b) Hydrometer

(c) Barometer (d) Calorimeter.

Q.23. *Density of non metals are .....*

(NCVT – 2012 Welder, Carpenter, Plumber, Sheet Metal)

(a) Less than ferrous and non ferrous metal. (b) More than ferrous and non ferrous metal.

(c) Same as ferrous and non ferrous metal (d) Same as ferrous metal.

Q.24. *Which equipment is used to determine the specific gravity of a substance ?*

(NCVT – 2012 Electrician)

(a) Nicholson's hydrometer (b) Lactometer

(c) Galvonometer (d) Pyrometer

Q.25. *Find the specific gravity (S.G.) of the mercury if :*

Mass of mercury (m) = 1360 gm.

Volume of mercury (V) = 100 cm^3

(NCVT – 2012 Electrician)

$$\left[\textbf{Hint : } Density = \frac{Mass}{Volume} = \frac{1360}{100} = 13.6\ gm/cm^3\right]$$

Q.26. *The dimensions of piece of metal are 8 mm × 30.5 mm × 6.2 mm. Calculate the weight of metal, if the density of metal is 7932 kg/m^3?*

(Jan.-2013 Tiesel Mech.)

[**Hint :** *Weight of metal = Volume of metal × density*

$= 0.008 \times 0.305 \times 0.0062 \times 7932\ kg/m^3$]

Q.27. *What will be the density (P) of iron cube if mass (m) of the metal is 5 kg and volume (V) 685 cc.*

(Jan.-2013 welder, carpenter, plumber, sheetmetal)

$$\left[\textit{Hint}: \text{Density } (P) = \frac{\text{Mass } (m)}{\text{Volume } (v)} = \frac{5 \times 1000}{685} \right]$$

Q.28 Fill in the blanks :

(i) Weight (w) = mass (m) × ..... .

(ii) Mass per unit volume of a substance is called ..... .

(iii) The unit of density in MKS system is ..... .

(iv) Generally solids have ..... density than fluids.

(v) To find sp. gravity of milk ..... is used.

(vi) Hydrometer is used to find ..... of fluid.

(vii) The unit of specific gravity is ..... .

(viii) The resultant experience of upward thrust on substance when immersed in liquid is called ..... .

Answer Sheet For MCQ

10. *(a)*	**11.** *(b)*	**12.** *(a)*
13. *(c)*	**14.** *(a)*	**15.** *(c)*
16. *(c)*	**17.** *(b)*	**18.** *(c)*
19. *(a)*	**20.** *(c)*	**21.** *(d)*
22. *(a)*	**23.** *(a)*	**24.** *(a)*

25. 13.6 gm/cm^3 **26.** 0.012 K **27.** 7.29 gm/cc

28. *(i) Gravitational force (g), (ii) density, (iii) kg/m^3, (iv) more, (v) Lactometer, (vi) Hydrometer, (vii) Nil (viii) Byoyancy*