

NEET PHYSICS

Topic: Physics - Hydrostatic & Fluid Mechanism and viscosity

- Q.1** Which one of the following would a hydrogen balloon find easiest to lift -
- (1) One kg. of steel
 - (2) One kg. of lightly packed feathers
 - (3) One kg. of water
 - (4) All the same
- Q.2** A body is just floating in a liquid (their densities are equal). If the body is slightly pressed down and released then it will -
- (1) Start oscillating
 - (2) Sink to the bottom
 - (3) Come back to the same position immediately
 - (4) Come back to the same position slowly
- Q.3** A body floats in a liquid contained in a beaker. The whole system is shown in fig. falling under gravity. The upthrust on the body due to liquid is -



- (1) Zero
- (2) Equal to weight of liquid displaced
- (3) Equal to weight of the body in air
- (4) Equal to the weight of the immersed body.

- Q.4** The most characteristic property of liquid is -
- (1) Elasticity
 - (2) Fluidity
 - (3) Formlessness
 - (4) Volume conservation
- Q.5** A boat having a length of 3 metre and breadth 2 metre is floating on a lake. The boat sinks by one cm when a man gets on it. The mass of the man is -
- (1) 60 kg
 - (2) 62 kg
 - (3) 72 kg
 - (4) 128 kg
- Q.6** If M_1 gm of a substance with specific gravity S_1 is mixed with M_2 gm of a substance with specific gravity S_2 and then the substances are used to make an alloy. What will be the specific gravity of the alloy ?
- (1) $(M_1 + M_2)/S_1S_2$
 - (2) $(M_1 + M_2)/(M_1/S_1 + M_2/S_2)$
 - (3) $(M_1/S_1 + M_2/S_2)/(M_1 + M_2)$
 - (4) $(M_1/S_1) + (M_2/S_2)/(M_1M_2)$
- Q.7** A man of weight 40 kg floats on water in a lake. His apparent weight is -
- (1) 40 kg
 - (2) 35 kg
 - (3) zero
 - (4) 20 kg
- Q.8** The barometric pressure and height on the earth are 10^5 Pa and 760mm respectively. If it is taken to moon, then barometric height will be -
- (1) 76 mm
 - (2) 126.6 mm
 - (3) zero
 - (4) 760 mm
- Q.9** The reading a spring balance when a block is suspended from it in air is 60N. This reading is changed to 40 N when the block is submerged water. The specific gravity of the block must be therefore -
- (1) 3
 - (2) 2
 - (3) 6
 - (4) $3/2$

Q.10 A solid of density D is floating in a liquid of density d . If v is the volume of solid submerged in the liquid and V is the total volume of the solid, then $\frac{v}{V}$ is equal to -

(1) $\frac{d}{V}$

(2) $\frac{D}{d}$

(3) $\frac{D}{(D+d)}$

(4) $\frac{D+d}{D}$

Q.11 A body of volume 100 c.c. is immersed completely in water contained in a jar. The weight of water and the jar before immersion of the body was 700 g wt. After immersion weight of water and jar will be -

(1) 700 g wt.

(2) 800 g wt.

(3) 500 g wt.

(4) 100 g wt.

Q.12 When a large bubble rises from the bottom of a lake to the surface, its radius doubles. If atmospheric pressure is equal to that of column of water height H , then the depth of lake is -

(1) H

(2) $2H$

(3) $7H$

(4) $8H$

Q.13 The total weight of a piece of wood is 6 kg. In the floating state in water its $\frac{1}{3}$ part remains inside the water. On this floating solid, what maximum weight is to be put such that whole of the piece of wood is drowned in the water ?

(1) 12 kg (2) 10 kg (3) 14 kg (4) 15 kg

Q.14 A sample of metal weights 210 gram in air, 180 gram in water and 120 gram in a unknown liquid. Then -

(1) the density of metal is 3 g/cm^3

(2) the density of metal is 7 g/cm^3

(3) density of metal is 4 times the density of the unknown liquid

(4) the metal will float in water

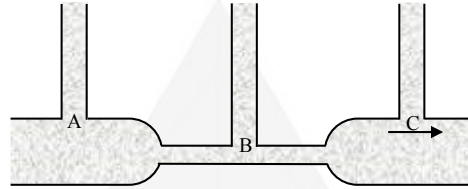
- Q.15** A wooden cube just floats inside water when a 200g mass is placed on it. When the mass is removed the cube is 2 cm above water level. The side of cube is -
 (1) 5 cm (2) 10 cm (3) 15 cm (4) 20 cm
- Q.16** "Torr" is the unit of -
 (1) Pressure (2) Density
 (3) Volume (4) Flux
- Q.17** A sphere is floating in water its $\frac{1}{3}$ rd part is outside the water and when sphere is floating in unknown liquid, its $\frac{3}{4}$ th part is outside the liquid then density of liquid is
 (1) $\frac{4}{9}$ gm/c.c. (2) $\frac{9}{4}$ gm/c.c.
 (3) $\frac{8}{3}$ gm/c.c. (4) $\frac{3}{8}$ gm/c.c.
- Q.18** Which of the following works on Pascal's law ?
 (1) Sprayer (2) Venturimeter
 (3) Hydraulic lift (4) Aneroid barometer
- Q.19** An object of weight W and density ρ is submerged in a fluid of density ρ_1 . Its apparent weight will be -
 (1) $W(\rho - \rho_1)$ (2) $\frac{(\rho - \rho_1)}{W}$
 (3) $W\left(1 - \frac{\rho_1}{\rho}\right)$ (4) $W(\rho_1 - \rho)$
- Q.20** Water stands upto a height h behind the vertical wall of a dam. What is the net horizontal force pushing the dam down by the stream, if width of the dam is σ ? (ρ = density of water)
 (1) $2h\sigma g$ (2) $\frac{h^2\rho\sigma g}{2}$
 (3) $\frac{h^2\rho\sigma g}{4}$ (4) $\frac{h\rho\sigma g}{4}$
- Q.21** A U-tube is partially filled with water. Oil which does not mix water is next poured into one side, until water rises by 25 cm on the other side. If the density of the oil is 0.8 g/cc, the oil level will stand higher than the water level by -
 (1) 6.25 cm (2) 12.50 cm
 (3) 18.75 cm (4) 25.00 cm

- Q.22** Which law states that the magnitude of pressure within fluid is equal in all parts ?
- (1) Pascal's law (2) Gay-Lusac's law
(3) Dalton's law (4) None of these
- Q.23** A body measures 5 N in air and 2 N when put in water. The buoyant force is -
- (1) 7 N (2) 9 N
(3) 3 N (4) None of these
- Q.24** Hydraulic press is based upon -
- (1) Archimede's principle
(2) Bernoulli's theorem
(3) Pascal's law
(4) Reynold's number
- Q.25** A wooden block is taken to the bottom of a lake of water and then released. It rise up with a -
- (1) Constant acceleration
(2) Decreasing acceleration
(3) Constant velocity
(4) Decreasing velocity
- Q.26** Magnus effect is very near to the -
- (1) magnetic field
(2) electric field
(3) Bernoulli's theorem
(4) magnetic effect of current
- Q.27** A cylinder is filled with non viscous liquid of density d to a height h_0 and a hole is made at a height h_1 from the bottom of the cylinder. The velocity of liquid issuing out of the hole is -
- (1) $\sqrt{2gh_0}$ (2) $\sqrt{2g(h_0 - h_1)}$
(3) $\sqrt{dgh_1}$ (4) $\sqrt{dgh_0}$

Q.28 Sudden fall of atmospheric pressure by a large amount indicate -

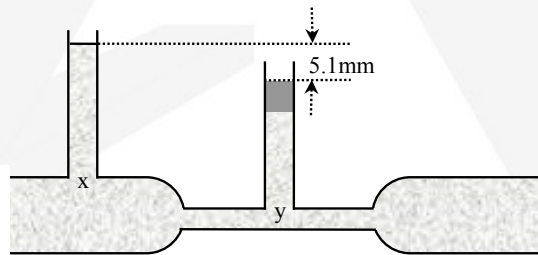
- (1) Storm
- (2) Rain
- (3) Fair weather
- (4) Cold wave

Q.29 In the figure below is shown the flow of liquid through a horizontal pipe. Three tubes A, B and C are connected to the pipe. The radii of the tubes, A, B and C at the junction are respectively 2 cm, 1cm. and 2 cm. It can be said that the -



- (1) Height of the liquid in the tube A is maximum
- (2) Height of the liquid in the tubes A and B is the same
- (3) Height of the liquid in all the three tubes is the same
- (4) Height of the liquid in the tubes A and C is the same

Q.30 The diagram (fig.) shows a venturimeter, through which water is flowing. The speed of water at X is 2 cm/sec. The speed of water at Y (taking $g = 1000 \text{ cm/sec}^2$) is -



- (1) 23 cm/sec
- (2) 32 cm/sec
- (3) 101 cm/sec
- (4) 1024 cm/sec

ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10
Ans.	2	2	3	4	5	6	7	8	1	2
Que.	11	12	13	14	15	16	17	18	19	20
Ans.	2	3	1	2	2	1	3	3	3	2
Que.	21	22	23	24	25	26	27	28	29	30
Ans.	2	1	3	3	1	3	2	1	4	1

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