PHYSICS

BOOKS - MTG-WBJEE PHYSICS (HINGLISH)

BULK PROPERTIES OF MATTER

Wb Jee Workout Single Option Correct Type

1. A spherical ball contracts in volume by 0.01% when subjected to a normal uniform pressure of 100 atmosphere. The bulk modulus of its material in dyne/cm^2 is

A. 10×10^{12}

B. 100×10^2

C. 1×10^{12} s

D. 2.0×10^{11}

Answer: C

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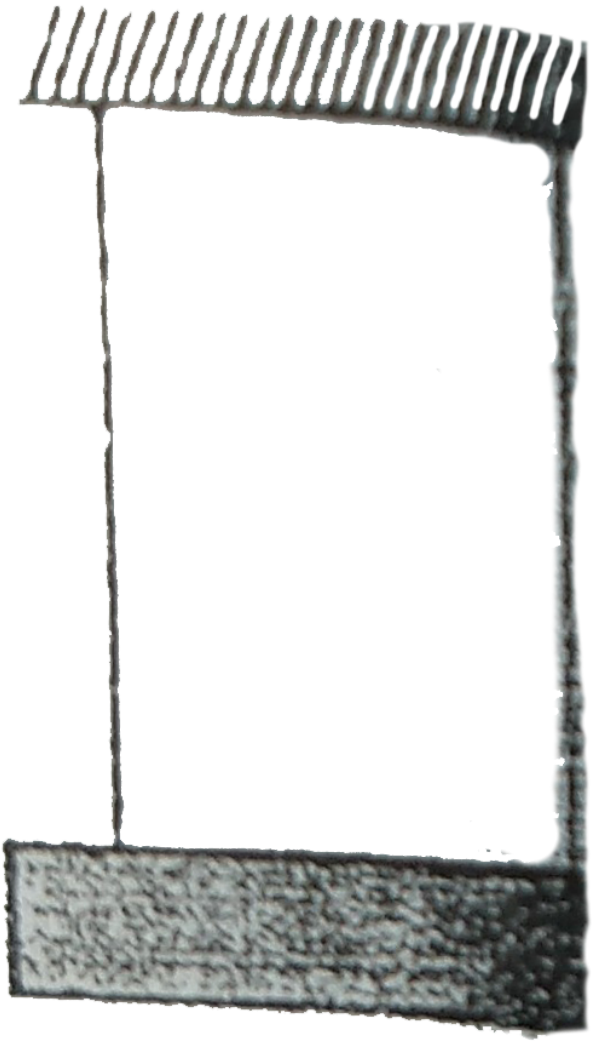
2. Two wires of equal length and cross-section area suspended as shown in figure. Their Young's modulus are Y_1 and Y_2

respectively. The equavalent Young's modulus will be



A. $Y_1 + Y_2$

B. $\frac{Y_1 + Y_2}{2}$

C. $\frac{Y_1 Y_2}{Y_1 + Y_2}$

D. $\sqrt{Y_1 Y_2}$

Answer: B

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3. if ρ is the density of the meterial of a wire and σ is the breaking stress. The greatest length of the wire that can hang freely without breaking is

A. $\frac{2\sigma}{\rho g}$

B. $\frac{\rho}{\sigma g}$

C. $\frac{\rho}{\rho g}$

D. $\frac{\rho g}{2\sigma}$

Answer: C

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4. A steel ring of radius r and cross section area A is fitted on to a wooden disc of radius $R(R > r)$. If Young's modulus be R, then the force with which the steel ring is expanded is

A. $AY\frac{R}{r}$

B. $AY\left[\frac{R-r}{r}\right]$

C. $\frac{Y}{A}\left[\frac{R-r}{r}\right]$

D. $\frac{Yr}{AR}$

Answer: B

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5. A stress of $1kg/mm^2$ is applied on a wire. If the modulus of elasticity of the wire is $10^{10}\text{dyne}/cm^2$, then the percentage increase in the length of the wire will be

A. 9.8E-5

B. 0.0098

C. 0.098

D. 0.98

Answer: B

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6. An iron bar of length L, cross-section area A and Young's modulus Y is pulled by a force F from both ends so as to produce an elongation l . Which of the following statements is correct?

A. $l \propto Y$

B. $l \propto \frac{1}{A}$

C. $l \propto A$

D. $l \propto \frac{1}{L}$

Answer: B

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7. A wire stretches a certain amount under a load. If the load and the diameter both increased to three times, then the stretch produced in the wire

A. remains same

B. is increased by three times

C. is reduced by three times

D. is reduced by two times.

Answer: C

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8. A copper rod of diameter 1 cm and length 8 cm is drawn in to a wire of length 18 m of uniform thickness. Find the thickness of wire.

A. the same stress and strain

B. the same stress but different strains

C. the same strain but different stresses

D. different stresses and strains.

Answer: B

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9. Which of the folliwing substances has the highest elastictiy

A. Steel

B. Copper

C. Rubber

D. Sponge

Answer: A

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10. A wire is stretched under a force. If the wire suddenly snaps, the temperature of the wire

A. remains the same

B. decreases

C. increases

D. first decreases then increases

Answer: C

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11. A beaker of radius 15 cm is filled with a liquid of surface tension 0.075 N/m. Force across an imaginary diameter on the surface of the liquid is

A. 0.075 N

B. $1.5 \times 10^{-2} N$

C. $0.225 N$

D. $2.25 \times 10^{-2} N$

Answer: D

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12. A piece of wood is floating in water. When the temperature of water rises, the apparent weight of the wood will

A. increase

B. decrease

C. may increase or decrease

D. remain same

Answer: D

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13. A wire of length 5 m is stretched by 1 mm by a force of 1 N. The value of energy (in mJ) stored in the wire is

A. 0.5

B. 0.05

C. 5

D. 50

Answer: A

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14. The breaking stress of a wire of length L and radius r is $5kg - wt/m^2$. The wire of length $2l$ and radius $2r$ of the same material will have breaking stress in $kg - wt/m^2$

A. 2

B. 4

C. 5

D. 10

Answer: C

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15. The diameter of a brass rod is 4 mm and Young's modulus of brass is $9 \times 10^{10} N/m^2$. The force required to stretch by 0.1 % of its length is

A. 3600 πN

B. $36\pi N$

C. $360\pi N$

D. $3.6\pi N$

Answer: C

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16. The increase in length on stretching a wire is $0.05\,\%$. If its poisson's ratio is 0.4, then its diameter

A. $0.002\,\%$

B. $0.001\,\%$

C. 0.0002

D. 0.0001

Answer: C

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17. A material has Poisson's ratio 0.5, If a uniform rod of it suffers a longtiudinal strain of 2×10^{-3} then the percentage increases in its volume is

A. 0.6

B. 0.4

C. 0.2

D. 0

Answer: D

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18. An object weights m_1 in a liquid of density d_1 and that in liquid of density d_2 is m_2. The density of the object is

A. $d = \frac{m_2 d_2 - m_1 d_1}{m_2 - m_1}$

B. $d = \frac{m_1 d_1 - m_2 d_2}{m_2 - m_1}$

C. $d = \frac{m_2 d_1 - m_1 d_2}{m_1 - m_2}$

D. $d = \frac{m_1 d_2 - m_2 d_1}{m_1 - m_2}$

Answer: D

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19. What fraction of an iceberg lies beneath the surface of the sea? Density of sea water $(\rho) = 1.028 \times 10^3 kg/m^3$, density of ice $(d) = 0.917 \times 10^3 kg/m^3$

A. 163N

B. 273N

C. 119N

D. 289 N

Answer: A

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20. The terminal velocity of small sized spherical body of radius r falling vertically in a viscous liquid is given by the following proportionality

A. $\frac{1}{r^2}$

B. $\frac{1}{r}$

C. r

D. r^2

Answer: D

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21. Water is flowing through a tube of non-uniform cross-section ratio of the radius at entry and exit end of the pipe is $3:2$. Then the ratio of velocities at entry and exit of liquid is

A. $8:27$

B. $4:9$

C. $1:1$

D. $9:4$

Answer: B

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22. A fluid is flowing through a tube of length L. The radius of the tube is r and the velocity of the fluid is v. If the radius of the tube is increased to 2r, then what will be the new velocity?

A. 4v

B. v/4

C. v/2

D. 2v

Answer: B

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23. Radius of an air bubble at the bottom of the lake is r and it becomes $2r$ when the air bubbles rises to the top surface of the

lake. If P cm of water be the atmospheric pressure, then the depth of the lake is

A. 142.80 m

B. 72.35 m

C. 723 m

D. 100 m

Answer: B

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24. A metal ball of radius 2 mm and density $10.5g/c.c.$ is dropped in glycerine of coefficient of viscosity $9.8\text{dyne } cm^{-2}s$ and density $1.5g/c.c.$ find the terminal velocity of the ball.

A. 2cm/s

B. 4cm/s

C. 6cm/s

D. 8cm/s

Answer: D

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25. Water is flowing through a very narrow tube. The velocity of water below which the flow remains a streamline flow is

A. relative velocity

B. terminal velocity

C. critical velocity

D. particle velocity

Answer: C

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26. If T is the surface tension of soap solution, the amount of work done in blowing a soap bubble from a diameter D to 2D is

A. $6\pi D^2 T$

B. $6\pi D T^2$

C. $4\pi D^2 T$

D. $4\pi D T^2$

Answer: A

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27. Energy needed in breaking a drop of radius R into n drops of radii r is given by

A. $4\pi T\left(r^2 - nR^2\right)$

B. $4\pi T\left(r^2 - nR^2\right)$

C. $4\pi T\left(nr^2 - R^2\right)$

D. $4\pi T\left(nr^2 + R^2\right)$

Answer: C

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28. Two parallel glass plates are dipped partly in the liquid of density d keeping them vertical. If the distance between the plates is x surface tension for the liquid is T and angle of contact θ, then rise of liquid between the plates due to capillary will be

A. $\frac{T\cos\theta}{xd}$

B. $\frac{2T}{xgd\cos\theta}$

C. $\frac{2T\cos\theta}{xgd}$

D. $\frac{T\cos\theta}{xdg}$

Answer: C

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29. A wooden cube floating in water supports a mass 0.2 kg on its top. When the mass is removed the cube rises by 2cm. What is the side legnth of the cube ? Density of water $= 10^3 kg/m^3$

A. 10cm

B. 20cm

C. 15cm

D. 25cm

Answer: A

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30. Two soap bubbles of radii a and b coalesce to form a single bubble of radius c. If the external pressure is P, find the surface tension of the soap solution.

A. $\sqrt{x^2 + y^2}$

B. $\sqrt{x + y}$

C. $x + y$

D. $\frac{x + y}{2}$

Answer: A

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31. A thick rope of rubber of density $1.5 \times 10^3 kgm^{-3}$ and Young's modulus $5 \times 10^6 Nm^{-2}$, 8 m in length, when hung from ceiling of a room, the increases in length due to its own weight is

A. $9.4 \times 10^{-2} m$

B. $19.2 \times 10^{-2} m$

C. $9.4 \times 10^{-3} m$

D. $9.4m$

Answer: A

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32. A uniform rod of length L, has a mass per unit length λ and area of cross section A. The elongation in the rod is l due to its own weight, if it suspended form the celing of a room. The Young's modulus of the rod is

A. $\frac{2\lambda gL}{Al}$

B. $\frac{\lambda gl^2}{AL}$

C. $\frac{\lambda gL^2}{2Al}$

D. $\frac{2\lambda gL^2}{Al}$

Answer: C

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33. One litre of a gas is maintained at pressure 72 cm of mercury. It is compressed isothermally so that its volume becomes

$900cm^3$. The values of stress and strain will be respectively

A. $0.106Nm^{-2}$ and 1.0

B. $1.06Nm^{-2}$ and 0.1

C. $106.62Nm^{-2}$ and 0.2

D. $10662.4Nm^{-2}$ and 0.1 34

Answer: D

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34. Two hail stones with radii in the ratio of $1:2$ fall from a great height through the atmosphere. Then the ratio of their momentum after they have attained terminal velocity is

A. $1:64$

B. $1:32$

C. $1:16$

D. $1:8$

Answer: B

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35. Water flows steadily through a horizontal pipe of a variable cross-section. If the pressure of water is p at a point where the velocity of flow is v, what is the pressure at another point where the velocity of flow is 2v, ρ being the density of water?

A. $p + 2\rho v^2$

B. $p - 2\rho v^2$

C. $p + \frac{3}{2}\rho v^2$

D. $p - \frac{3}{2}\rho v^2$

Answer: D

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36. A ball whose density is $0.4 \times 10^3 kg/m^3$ falls into water from a height of 9 cm. To what depth does the ball sink ?

A. 9cm

B. 6cm

C. 4.5 cm

D. 2.25cm

Answer: B

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37. The surface energy of a drop is E. If one thousand such drops coalesce to form a large drop then its surface energy is E_1. The ratio is E_1 . The ratio $\frac{E}{E_1}$ is

A. $\frac{1}{100}$

B. $\frac{1000}{1}$

C. $\frac{1}{10}$

D. $\frac{10}{1}$

Answer: A

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38. The Poisson's ratio of a material is 0.5. If a force is applied to a wire of this material, there is a decrease in the cross-sectional area by 4%. The percentage increase in the length is:

A. 0.01

B. 0.02

C. 0.025

D. 0.04

Answer: D

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39. Tow sphares of equal masses but radius r_1 and r_2 are allowed to fall in liquid of infinit columm. The ratio of their terminal velocityes are

A. 1

B. $r_1 : r_2$

C. $r_2 : r_1$

D. $\sqrt{r_1} : \sqrt{r_2}$

Answer: C

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40. A liquid flows through two capillary tubes A and B connected in series. The length and radius of B are twice that of A. What is the ratio of the pressure difference across A to that across B ?

A. $1 : 16$

B. $8 : 1$

C. $1 : 8$

D. $1 : 2$

Answer: B

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41. Let L be the length and d be the diameter of cross section of a wire. Wires of the same material with different L and d are subjected to the same tension along the length of the wire. In which of the following cases, the extension of wire will be the maximum?

A. L = 200 cm, d=0.5 mm

B. L = 300 cm, d=1.0 mm

C. L = 50 cm, d= 0.05 mm

D. L = 100 cm, d= 0.2 mm

Answer: C

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42. A metallic block weighs $15N$ in air. It weights $12N$ when immersed in water and $13N$ when immersed in another liquid. What is the specific gravity of the liquid?

A. 36g

B. 48g

C. 64g

D. 80g

Answer: D

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43. The amount of work done in blowing a soap bubble such that its diameter increases from d to D is (T=surface tension of the solution)

A. $2\pi\left(D^2 - d^2\right)T$

B. $2\pi(D - d)T$

C. $2\pi(D - d)T^2$

D. $2\pi(D + d)T^2$

Answer: A

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44. If two soap bubbles of equal radii r coalesce then the radius of curvature of interface between two bubbles will be

A. $\frac{r_1 r_2}{r_2 - r_1}$

B. $\frac{r_1 r_2}{r_2 + r_1}$

C. $\frac{r_2 - r_1}{r_1 r_2}$

D. $\frac{r_2 + r_1}{r_1 r_2}$

Answer: A

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45. Water rises to a height h in a capillary at the surface of earth. On the surface of the moon the height of water column in the same capillary will be-

A. 6h

B. h/6

C. h

D. 0

Answer: A

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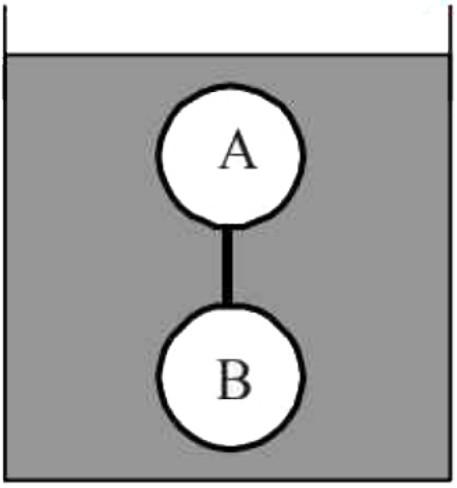
Wb Jee Workout One Or More Than One Option Correct Type

1. Two solid spheres A and B of equal volumes but of different densities d_A and d_B are connected by a string. They are fully immersed in a fluid of density d_F. They get arranged into an equilibrium state as shown in the figure with a tension in the string. The arrangement is possible only if



A. $d_A < d_F$

B. $d_B > d_F$

C. $d_A > d_F$

D. $d_A + d_B = 2d_F$

Answer: A::B::D

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2. Two exactly similar wires of steel and copper are stretched by equal forces. If the total elogation is 1cm. Find by how much is each wire elongated ? Given Y for steel $= 20 \times 10^{11} dyne/cm^2$ and Yf or $copper = 12 \times 10^{11} dyne/cm^2$

A. Steel wire is elongated by 3/8 cm

B. Copper wire is elongated by 7/8 cm.

C. Steel wire is elongated by 5/8 cm.

D. Copper wire is elongated by 5/8 cm.

Answer: A::D

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3. Two exactly similar wires of steel and copper are stretched by equal forces. If the total elogation is 1cm. Find by how much is each wire elongated ? Given Y for steel $= 20 \times 10^{11} dyne/cm^2$ and Yf or $copper = 12 \times 10^{11} dyne/cm^2$

A. $1.12 \times 10^{-6} m$

B. $3.32 \times 10^{-6} m$

C. $2.32 \times 10^{-3} m$

D. $23.2 \times 10^{-4} m$

Answer: C

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4. A body floats in water with 40% of its volume outside water. When the same body floats in an oil. 60% of its volume remians outside oil. The relative density of oil is

A. 0.9

B. 1.2

C. 1.5

D. 1.8

Answer: C

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5. A uniform long tube is bent into a circle of radius R and it lies in vertical plane. Two liquids of same volume but densities

ρ and δ fill half the tube. The angle θ is

A. $\tan^{-1}\left(\frac{\rho-\partial}{\rho+g}\right)$

B. $\frac{\tan^{-1}\rho}{g}$

C. $\frac{\tan^{-1}\partial}{\rho}$

D. $\tan^{-1}\left(\frac{\rho+\delta}{\rho+\delta}\right)$

Answer: A

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6. Two solid spheres of same metal but of mass M and 8M fall simultaneously on a viscous liquid and their terminal velocities are v and nv, then value of n is

A. 16

B. 8

C. 4

D. 2

Answer: C

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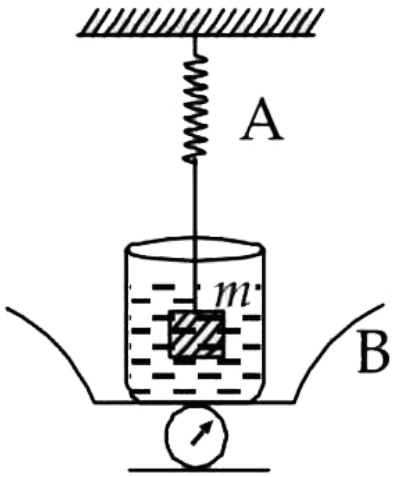
7. The spring balance A reads 2 kg with a block m suspended from it. A balance B reads 5kg when a beaker with liquid is put on the pan of the balance. The two balances are now so arranged that the hanging mass in inside the liquid in the beaker as

shown in the figure. In this situation:



A. the balance A will read more than 2 kg

B. the balance B will read more than 5 kg

C. the balance A will read less than 2 kg and B will read more than 5 kg

D. the balance A and B will read 2 kg and 5 kg respectively.

Answer: B::C

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8. A stone of relative density K is released from rest on the surface of a lake. If viscous effects are lgnored, the stone sinks in water with an acceleration of

A. Net downward force on the stone is zero

B. Stone sinks in water with an acceleration of $g\left(\frac{1}{K}+1\right)$

C. Net downward force on the stone is mg $\left(1-\frac{1}{K}\right)$

D. Stone sinks in water with an acceleration of $g\left(1-\frac{1}{K}\right)$

Answer: C::D

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9. A number of droplets, each of radius r, combine to form a drop of radius R. If T is the surface tension, the rise in temperature will be

A. $\frac{2T}{rJ}$

B. $\frac{3T}{rJ}$

C. $\frac{3T}{J}\left(\frac{1}{r}-\frac{1}{R}\right)$

D. $\frac{2T}{J}\left(\frac{1}{r}-\frac{1}{R}\right)$

Answer: C

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10. A cylindrical tank is filled with water to a level of 4 m. A hole is opened at a height of 60 cm from bottom. The ratio of the area of the hole to that at cross-sectinal area at cylinder is 0.2. Then the velocity with which water is coming out is $\left(g=10m/s^2\right)$

A. The speed with which water level decreases is $V=\frac{av_e}{A}$

where v_e is the velocity of efflux.

B. The velocity of efflux is equal to 50 m/s.

C. The speed with which water level decreases is $V = \frac{a}{Av_e}$

where v_e is the velocity of efflux.

D. The velocity of efflux is equal to 7.07 m/s.

Answer: A::D

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Wb Jee Previous Years Questions Single Option Correct Type

1. A wire of initial length L and radius r is stretched by a length l. Another wire of same material but with initial length 2L and radius 2r is stretched by a length 2l. The ratio of the stored elastic energy per unit volume in the first and second wire is?

A. $1:4$

B. $1:2$

C. $2:1$

D. $1:1$

Answer: D

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2. Two soap bubbles of radii r and 2r are connected by a capillary tube-valve arrangement as shown in the diagram. The valve is now opened. Then which one of the following will result?

A. the radii of the bubbles will remain unchanged

B. the bubbles will have equal radii

C. the radius of the smaller bubble will increase and that of the bigger bubble will decrease

D. the radius of the smaller bubble will decrease and that of the bigger bubble will increase.

Answer: D

View Text Solution

3. Water is flowing streamline motion through a horizontal tube. The pressure at a point in a tube is P where the velocity of flow is v. At another point where the pressure is $\frac{p}{2}$, the velocity of flow is (density of water = ρ)

A. $\sqrt{v^2 + \frac{p}{\rho}}$

B. $\sqrt{v^2 - \frac{p}{\rho}}$

C. $\sqrt{v^2 + \frac{2p}{\rho}}$

D. $\sqrt{v^2 - \frac{2p}{\rho}}$

Answer: A

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4. Two spheres of the same material, but of radii R and 3R are allowed to fall vertically downwards through a liquid of density o. The ratio of their terminal velocities is

A. $1:3$

B. $1:6$

C. $1:9$

D. $1:1$

Answer: C

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5. A small metal sphere of radius a is falling with a velocity v through a vertical column of a viscous liquid. If the coefficient of viscosity of the liquid is η, then the sphere encounters an opposing force of

A. $6\pi\eta a^2 v$

B. $\frac{6\eta v}{\pi a}$

C. $6\pi\eta a v$

D. $\frac{\pi\eta v}{6a^3}$

Answer: C

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6. A drop of some liquid of volume $0.04cm^3$ is placed on the surface of a glass slide. Then, another glass forms a thin layer of area $20cm^2$ between the surfaces of the two slides. To separate the slides a force of 16×10^5 dyne has to be applied normal to the surfaces. The surface tension of the liquid is (in dyne cm^{-1})

A. 60

B. 70

C. 80

D. 90

Answer: C

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7. A wooden block is floating on water kept in a beaker. 40% of the block is above the water surface. Now the beaker is kept inside a lift that starts going upward with acceleration equal to $g/2$. The block will then

A. sink

B. float with 10% above the water surface

C. float with 40% above the water surface

D. float with 70% above the water surface

Answer: C

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8. A thin uniform rod mass M and length L is hinged at its upper end. And released from rest from a horizontal position.

The tension at a point located at a distance $L/3$ from the hinge point, when the rod become vertical will

A. $\frac{W}{W_1}$

B. $\frac{Wl_1}{Wl - W_1 l_2}$

C. $\frac{l_1}{l_1 - l_2}$

D. $\frac{l_1}{l_2}$

Answer: C

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9. The length of a metal wire is l_1 when the tensionin it is T_1 and isl_2 when the tension is T_2. The natural length of the wire is

A. $\frac{L_1 + L_2}{2}$

B. $\sqrt{L_1 L_2}$

C. $\frac{T_2 L_1 - T_1 L_2}{T_2 - T_1}$

D. $\frac{T_2 L_1 - T_1 L_2}{T_2 - T_1}$

Answer: C

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10. A 20 cm long capillary tube is dipped vertically in water and the liquid rises upto 10 cm. If the entire system is kept is a freely falling platform, the length of the water column in the tube will be

A. 5cm

B. 10cm

C. 15cm

D. 20cm

Answer: D

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11. A hollow sphere of external radius R and thickness t (< < R) is made of a metal of density ρ. The sphere will float in water if

A. $t \leq \frac{R}{\rho}$

B. $t \leq \frac{R}{3\rho}$

C. $t \leq \frac{R}{2\rho}$

D. $t \geq \frac{R}{3\rho}$

Answer: B

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12. 1000 droplets of water having 2 mm diameter each coalesce to form a single drop . Given the surface tension of water is $0.072Nm^{-1}$ .the energy loss in the process is

A. $8.146 \times 10^{-4}J$

B. $4.4 \times 10^{-4}J$

C. $2.108 \times 10^{-5}J$

D. $4.7 \times 10^{-1}J$

Answer: A

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13. A gas bubble of 2 cm diameter rises through a liquid $1.75gmcm^{-3}$ with a fixed speed of $0.35cms^{-1}$.Naglect the density of the gas. The cofficient of viscosity of the liquid is

A. 870 poise

B. 1120 poise

C. 982 poise

D. 1089 poise

Answer: D

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14. A liquid of bulk modulus k is compressed by applying an external pressure such that its density increases by $0.01\ \%$. The pressure applied on the liquid is

A. $\frac{k}{10000}$

B. $\frac{k}{1000}$

C. $1000k$

D. $0.01k$

Answer: A

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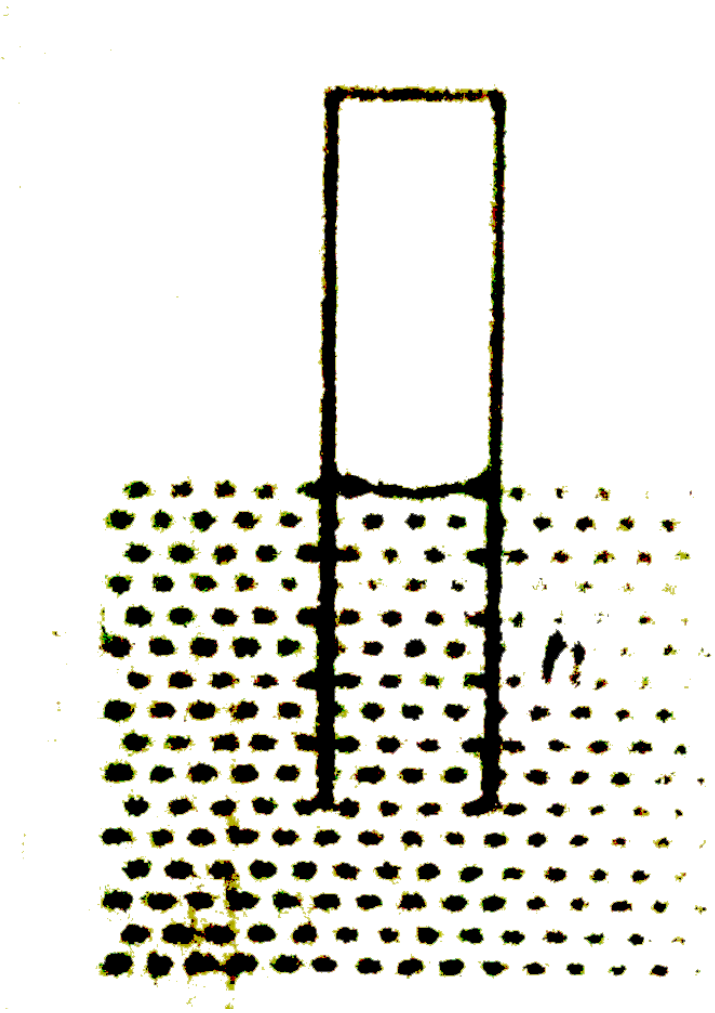
15. A glass capillary of length l and inside radius $r(r << l)$ is submerged vertically into water. The upper end of the capillary is scaled. The atmospheric pressure is p_0. To what length h has the capillary to be submerged to make the water levels inside and outside the capillary coincide. Assume that temperature of air in the capillary remains constant. (given, surface tension of water =

T, angle of contact between glass water interface $= 0^\circ$)



A. $\frac{l}{\left(1+\frac{P_0 r}{4\gamma}\right)}$

B. $l\left(1-\frac{p_0 r}{4\gamma}\right)$

C. $l\left(1-\frac{p_0 r}{2\gamma}\right)$

D. $\frac{l}{\left(1+\frac{p_0 r}{2\gamma}\right)}$

Answer: D

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16. The stress along the length of a rod with rectangular cross section) is 1% of the Young's modulus of its material. What is the approximate percentage of change of its volume? (poisson's ration of the material of the rod is 0.3)

A. 0.03

B. 0.01

C. 0.007

D. 0.004

Answer: D

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17. What will be the approximate terminal velocity of a rain drop of diamteter $1.8 \times 10^{-3} m$, when density of rain water $\approx 10^3 kgm^{-3}$ and the co-efficient of viscosity of air $\approx 1.8 \times 10^{-5} Nsm^{-2}$? (Neglect buoyancy of air.)

A. $49 ms^{-1}$

B. $98 ms^{-1}$

C. $392 ms^{-1}$

D. $980 ms^{-1}$

Answer: D

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18. A small spherical body of radius r and density ρ moves with the terminal velocity v in a fluid of coefficient of viscosity η and density σ . What will be the net force on the body?

A. $\frac{4\pi}{3}r^3(\rho-\sigma)g$

B. $6\pi\eta rv$

C. 0

D. infinity

Answer: C

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19. A compressive force is applied to a uniform rod of rectangular cross-section so that its length decreases by 1%. If the Poisson's

ratio for the material of the rod be 0.2, which of the following statements is correct? "The volume approximately ...

A. decreases by 1%

B. decreases by 0.8%

C. decreases by 0.6%

D. increases by 0.2%

Answer: C

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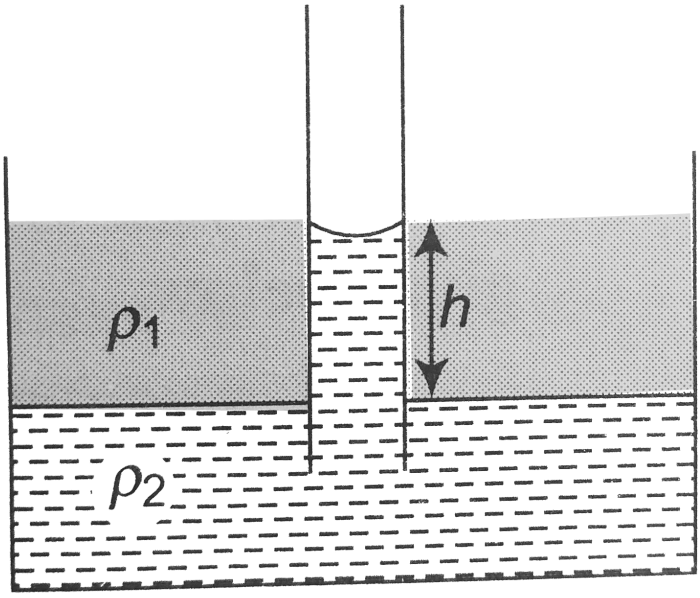

20.

A container is partially filled with a liquid of density ρ_2 A capillary tube of radius r is vertically inserted in this liquid. Now another liquid of density $\rho_1(\rho_1 < \rho_2)$ is slowly poured in the container to a height h as shown. There is only denser liquid in the capillary tube. The rise of denser liquid in the capillary tube is also h. Assuming zero contact angle, the surface tension of heavier liquid is

A. $\frac{1-x_2}{x_1-x_2}$

B. $\frac{1-x_1}{x_1+x_2}$

C. $\frac{x_1-x_2}{x_1+x_2}$

D. $\frac{x_2}{x_1}-1$

Answer: A

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21. The relative density of a material is found by weighing the body first in air and then in water . If the weight in air is $(10.0 \pm 0.1)gf$ and the weight in water is $(5.0 \pm 0.1)gf$, then the maximum permissible percentage error in relative density is

A. $\frac{\rho_1}{\rho_w(\rho_2-\rho_1)}[w_1(\rho_2-\rho_w)-w_2\rho_2]$

B. $\frac{\rho_1}{\rho_w(\rho_2+\rho_1)}[w_1(\rho_2-\rho_w)+w_2\rho_2]$

C. $\frac{\rho_1}{\rho_w(\rho_2-\rho_1)}[w_1(\rho_2-\rho_w)-w_2\rho_1]$

D. $\frac{\rho_1}{\rho_w(\rho_2 - \rho_1)}[w_1(\rho_1 - \rho_w) - w_2\rho_1]$

Answer: A

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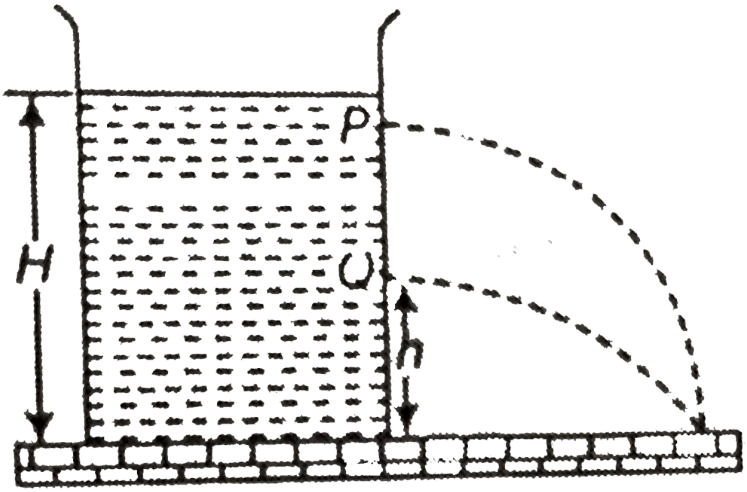
22. A cylindrical vessel filled with water to a hight H. A vessel has two small holes in the side, from which water iins rushing out horizontal and the two steams stike the ground at the same poin, if the lower hole Q Q is h height above the ground, then

the height of hole P above the ground will be



A. 1

B. 2

C. 3

D. 4

Answer:

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Wb Jee Previous Years Questions One Or More Than One Option Correct Type

1. A drop of radius r is broken into n equal drips. Calulate the work done if surface tension of water is T.

A. $r > \left(\frac{2R\sigma}{3\rho g}\right)^{1/3}$

B. $r > \left(\frac{2\sigma}{3\rho g}\right)$

C. $\frac{2\sigma}{r} >$ atmospheric pressure

D. $r > \left(\frac{2R\sigma}{3\rho g}\right)^{2/3}$

Answer:

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