PHYSICS

BOOKS - SURA PUBLICATION

Force and Pressure

Exercises

1. If we apply a force against the difrection of motion of a body, then the body, then the body will

A. stop moving

B. move with an increased speed

C. mov with a decreased speed

D. move in a different direction

Answer:

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2. Pressure exerted by a liquid is increased by

A. the density of the liquid

B. the height of the liquid columm

C. Both(a) & (b)

D. None of the above

Answer: B

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3. Unit of pressure is

A. pascal

B. Nm^{-2}

C. poise

D. Both (a) & (b)

Answer: C

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4. The value of the atmospheric perssure at sea leavel is

A. 76 cm of mercury column

B. 760 cm of mercury column

C. 176 cm of mercury column

D. 7.6 cm of mercury column

Answer: option 1

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5. Hydraulic lift works under the principle of _____.

A. Stoke's law

B. Bernoulli's law

C. Torricelli's law

D. Pascal's law

Answer: D

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6. MATCH THE FOLLOWING

Match - I			
Column - I		Column - II	
i.	Static friction	(a)	viscosity
ii.	Kinetic friction	(b)	least friction
iii.	Rolling friction	(c)	objects are in motion
iv.	Friction between the liquid layers	(d)	objects are sliding
v.	Sliding friction	(e)	objects are at rest

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7. MATCH THE FOLLOWING

Match - II			
Column - I		Column - II	
i.	Barometer	(a)	reduce friction
ii.	Increase friction	(b)	atmospheric pressure
iii.	Decrease friction	(c)	cause of friction
iv.	Lubricants	(d)	increasing area of contact
v.	Irregular surface	(e)	decreasing area of contact

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Example

1. Force acting on a given area is called pressure.

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2. A moving body come to rest due to friction alone.

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3. A body will sink if the weight of the greater than the buoyant force.

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4. One atmosphere is equivalent to,1,00,000 newton force acting on one square metre.

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5. Rolling friction is slightly greater than the sliding fricition.

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6. Friction is the only reason for the loss of energy.

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7. Liquid pressure decreasses with the decrease of depth.

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8. Viscosity depends on the prends on the pressure of a liquid.

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9. Rolling friction, static friction, sliding fricition.

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10. Let a marble roll on the following surfaces.Arrange the choice of the material such that a marble moving over it covers a greater distance. Cotton cloth, glass plate, paper, card board, silver plate

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11. Knot in a theread:_____ friction:: ball bearing:_____ friction

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12. Downward force: weight:: Upward force offered by liquid:_____

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13. A stone weighs 500 N.Calculate the pressure exerted by it if it markes a contact with a surface of area $25cm^2$.

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14. In a hydraulic life, the surface area of the input piston is $10cm$. The surface area of the output piston is $3000cm$ .A 100 N force applied to the onput piston raises the output

piston.Calulate the force required to raise the output piston.

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15. ASSERTION&REASON: Mark the correct choice as: Assertion: Sharp knives are used to cut the vegetables.Reason: Sharp edges exert more presure.

A. If both assertion and reason are true and the reason is the correct

explanation of the assertion.

B. If both assertion and reason are true,but the reason is not the correct explanation of the assertion.

C. If the assertion is true,but the reason is fasle.

D. If both assertion and reason are false.

Answer:

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16. ASSERTION&REASON: Mark the correct choice as: Assertion: Broad straps are used in bags.Reason: Broad straps last for long life.

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17. ASSERTION&REASON: Mark the correct choice as: Assertion : Water strider slides easily on the surface of water.Reason: Water strider experiences less buoyant force.

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18. Give two example to verify that a force tends to change the shape of a body.

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19. Give two example to verify that a force tends to change the static condition of a body.

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20. What do you feel when you thouch a nail immediately after it is hammered into a wooden plank?Why?

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21. How does the friction arise between the surfaces of two bodies in relative motion?

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22. Name two instrument, which help to measure the pressure of a Huid.

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23. Define one atmosphere.

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24. Why are heavy bags provided with broad straps?

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25. How does surface help a plant?

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26. Which has greater viscosity,oil or honey? Why?

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27. Define friction.Give two exemples of the utility of friction In day to day life.

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28. Write down three ways of minimising friction.

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29. Why is a ball bearing used in a cycle hub?

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30. Write down three applications of Pascal's law.

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31. "Friction is a necessary evil"-explain.

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32. Give the different types of friction and explain each with an example.

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33. Describe an experiment to prove that friction depends on the nature of a surface.

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34. Explain how friction can be minimised.

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35. Describe an experiment to prove that pressure in a liquid increases with depth..

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36. Why is it not advisable to take a fountain pen while travelling in an aeroplane?

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37. Is there any possibillity of marking a special device to measure the magnitude of friction directly?

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38. Vidhya posts a question:Mercury is costly.So, instead of mercry can we use water as a barometric liquid? Answer to Vidhya and explain, the difficulty of constructing a water barometer.

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39. A push or pull on an abject is called force.

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40. Pressure can be increased by decreasing the force.

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41. All flowing substance such as liquids or gases are called fluids.

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42. The pressure exerted by air is called atmospheric pressure.

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43. Pressure is directly proportional to the area of contact.

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44. The pressure in a liquid is the same at all depths.

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45. Liquid pressure :_____:: Atmospheric Pressure:_____.

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46. Broader straps:_____:: Thin needles:_____.

Watch Video Solution

47. Pascal's law : _____:: Surface tensin: _____.

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48. Viscouse force: _____ :: Buoyant force : _____.

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49. Objects placed at rest on earth : _____ :: Bodies slide over the surface on other body : ____.

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50. Write the SI unit of force.

Watch Video Solution

51. Write the SI unit of pressure.

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52. Name the material which is used to reduce friction.

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53. What is latral pressure?

Watch Video Solution

54. What is thrust?

Watch Video Solution

55. Name an instrument used to measure the difference in the liquid pressure.

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56. Mention the two types of forces.

Watch Video Solution

57. State whether the liquids and gases also exerts pressure.

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58. In 'tug of war' when two teams pull equally hard, then what happens?

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59. Define force. Mention its SI unit.

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60. Dose the palm apply any force on the ball, whan we place our palm in front of a moving ball?

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61. Briefly explain how do we experience force in our daily life.

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62. Can you life or push a book lying on a table without thoching it ?

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63. Explain the effect on the pressure when area on which it is applied, decreases.

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64. Explain the variation of the pressure exerted by liquid with respect to following factors. Amount of liquid

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65. Explain the variation of the pressure exerted by liquid with respect to following factors. Depth

Watch Video Solution

66. Explain the variation of the pressure exerted by liquid with respect to following factors. Shape and size of container

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67. Give two expmples to reduce freiction.

Watch Video Solution

68. Explain why the cutting instrumets are sharpened.

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69. Cooking in a place located at a higher attitude is difficult. Why?

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70. Write about buoyant force.

Watch Video Solution

71. Explain the advantages and disadvantages of fricition.

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72. Define pascal's law. Explain the application of pascal's law in our daily life.

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73. What is surface tension? Explain the application of surface tension.

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74. Briefly explain the concept of variation of atmospheric pressure.

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75. Why dams are made stronger and thicker at the bottom that at the top?

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76. Why do scuba divers were a special suit while they go into deep sea levels?

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77. Why are rain drop spherical in nature?

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78. A liquid flowing out of a very small opening of a tube of a tab comes out in the form of

fine drops and not as a continuous stream.Why?

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79. Trees are greenish. They are greenish at the tip too.How does the water rise upward in a tree or plant against the force of gravity?

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80. Determine the pressure when a force of 200 N acts on area $20m^2$

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81. Determine the pressure when a force of 200 N acts on area $8m^2$

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82. A force of 20 N acts over an of $4cm^2$. Find the value of pressure?($\in Nm^{-2}$)

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83. What will be the force required tp exert a pressure of 20,000 Pa on an area of $1cm^2$.

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84. Calculate the area of a 1500 N object that exerts a pressure of 500 Pa.

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Exercise

1. A stone weighs 500 N.Calculate the pressure exerted by it if it markes a contact with a surface of area $25cm^2$.

A. $\frac{kg}{m^3}$

B. $face\{kg\}\{m^2$

C. pascal

D. Newton

Answer:

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2. The unit of pressure is_____

A. electrostatic force

B. frictional force

C. muscular force

D. gravitaional force

Answer:

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3. The were and tear in the machine part is due to____.

A. Lubricant

B. Treads on a tyre

C. Strearnlining

D. Polishing

Answer:

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4. Which of the following increases friction?

A. pressure

B. thrust

C. force of gravity

D. none of the these

Answer:

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5. The total force exerted by a body normal to the surface is a called___.

A. $10^{-5}Nm^{-2}$

B. $10^{4}Nm^{-2}$

C. $10^{5}Nm^{-2}$

D. $10^3 Nm^{-2}$

Answer:

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6. The atmospheric pressure on the surface of the earth is about

A. dyne

B. newton

C. pascal

D. Newton second

Answer:

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7. The SI unit of force is _____

A. Nm^{-2}

B. Nm^{-1}

C. pascal

D. dyne

Answer:

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8. The SI unit of surface tension is_____.

A. friction

B. buoyant force

C. surface tension

D. atmospheric pressure

Answer:

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9. The amount of force acting per unit length on the surface of a liquid is called___.

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10. At sea level, the height of the mereury columm is around_____ mm.

A. sliding

B. static

C. rolling

D. kinetic

Answer:

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11. Friction existing during the motion of bodies is called _____friction .

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12. If the same force is made to act on a larger area, the pressure _____.

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13. At the give depth, a liquid exerts_____ pressure in all direction.

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14. The presstre exerted by the air around us is called _____ pressure.

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15. At higher altitudes, atmospheric pressure is_____.

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16. Friction depends on the _____ of two surface in contact.

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17. Water strider insect slides on the wather surface easily due to the _____ of water.

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18. The force Which acts in order to oppose the relative motion of the layer is known as _____ force.

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19. The automobile brake system works according to_____.

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20. The _____ is used to mark the compressed bundles of cotton or cloth so as to occupy less space.

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21. In the SI system 1 atm= _____ pascal.

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22.

	Column - I		Column - II
i	Friction produces	(a)	Ceiling fan
ii	Lubricants	(b)	Heat
iii	Soapy floor	(c)	Oil and grease
iv	Ball bearing	(d)	Rolling friction
v	Wheels	(e)	Less the friction

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23.

	Column - I		Column - II
i	Friction	(a)	Measuring force
ii	Spring balance	(b)	Reduce friction
iii	Shape of aeroplane	(c)	Nature of surface
iv	Lubricants	(d)	Drag
v	Fluid friction	(e)	Bird

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24. Assertion and Reason. Mark the correct choice as : Assertion: Force is defined as a push as a push or pull acting on a body. Reason: CGS unit of foree is newton.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true,but the reason is not the correct explanation

of the assertion.

C. If the assertion is true,but the reason is false.

D. If the assertion is t false,but the reason is true.

Answer:

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25. Assertion and Reason. Mark the correct choice as : Assertion: Friction always opposes the motion. Reason: Whenever one surface moves or tries to moves over another surface, the force of friction starts acting on the surfaces .

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true,but the reason is not the correct explanation of the assertion.

C. If the assertion is true,but the reason is false.

D. If the assertion is t false,but the reason is true.

Answer:

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26. Assertion and Reason. Mark the correct choice as : Assertion: The pressure at the bottom of the sea is lesser then that near the surface. Reason: The pressure exerted by a liquid depends upon the depth of the liquid and density of the liquid .

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true,but the reason is not the correct explanation of the assertion.

C. If the assertion is true,but the reason is false.

D. If the assertion is t false,but the reason is true.

Answer:

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27. Assertion and Reason. Mark the correct choice as : Assertion: We can live very happily if friction is not present in nature. Reason:Aeroplane shape is streamlined to reduce the affort of frictional force .

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true,but the reason is not the correct explanation

of the assertion.

C. If the assertion is true,but the reason is false.

D. If the assertion is t false,but the reason is true.

Answer:

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28. Assertion and Reason. Mark the correct choice as : Assertion: There is danger of a vehicle skidding on a wet road. Reason:The tyres of the vehicle lose their grip on the road due to increase in friction due to presrnce of water on the road..

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29. Cross word puzzle : Across : The mixture of gases that surrounds the Earth or some other

celestial body.

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30. Cross word puzzle : Across : A unit used to measure pressure.

Watch Video Solution

31. Cross word puzzle : Across : A force acting normal to a surface.

Watch Video Solution

32. Cross word puzzle : Across : A unit used to measure pressure.

Watch Video Solution

33. Cross word puzzle : Across : The pressure exerted by air.

Watch Video Solution

34. Cross word puzzle : Across : Amount of force applied per unit area.

Watch Video Solution

35. Cross word puzzle : Across : Something that causes a body to move, change its speed or direction, or distorts its shape.

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36. Cross word puzzle : Across : An instrument for measuring atmospheric pressure.

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37. Cross word puzzle : Across : The upward force that fluids exert on all matter.

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38. Cross word puzzle : Across : The pressure exerted at any point on a enclosed liquid is transmitted equally and undiminished in all directions.

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39. Unit of pressure is

A. pascal

B. Nm^{-2}

C. poise

D. Both (a) & (b)

Answer:

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40. A _____ is used to measure liquid pressure.

A. manometer

B. barometer

C. thermometer

D. voltmeter

Answer:

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41. If the weight of the object is less than the upward force, then the object will _____.

A. sink

B. float

C. fly

D. none

Answer:

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42. A simple barometer was first constructed by _____ .

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43. Friction is called a _____ evil.

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44. A drinking straw works aon the existence of _____ pressure.

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45.

Barometer	(a)	Upward force
Buoyant force	(b)	Atmospheric pressure
Manometer	(c)	A substance that can flow
Fluid	(d)	A device used for measuring liquid pressure

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46. Taking out paste frome a tooth paste tube is an expmple to highlight which physical property?

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47. Write the SI unit of force.

Watch Video Solution

48. Name the material which is used to reduce friction.

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49. Name an instrument used to measure the difference in the liquid pressure.

Watch Video Solution

50. Define friction.Give two exemples of the utility of friction In day to day life.

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51. How do sailors protect their ship during a heavy storm?

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52. Define force. Mention its SI unit.

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56. Explain how friction can be minimised.

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