Chapter 3: Force and Pressure

Worksheet 1

1. Tick the correct answer.

(i) Thrust per unit area is called

(a) pressure   (b) surface area   (c) force   (d) mass

(ii) The SI unit of moment of a force

(a) newton   (b) dyne   (c) newton metre   (d) metre

(iii) Pressure is directly proportional to

(a) thrust   (b) force   (c) both (a) and (b)   (d) none

(iv) The pressure exerted on the object increases when surface area

(a) increases   (b) decreases

(c) either increases or decreases   (d) none

(v) Which one of the following is correct expression for pressure exerted by a liquid column?

(a) $P = hdg$ (b) $P = hg$ (c) $P = hd$ (d) $P = mgh$

2. Write T for true and F for false statement.

(i) A force may change the speed of an object.

(ii) Liquids and gases exert pressure in all directions.

(iii) If a force produces clockwise rotation in an object, the moment of the force is said to be a clockwise moment.

(iv) The SI unit of pressure is N m.

(v) Foundations of high-rise buildings are kept wide so as to reduce pressure on the ground.

3. Encircle the odd one out.

(i) Torque, force, perpendicular distance and mass

(ii) N/m^2, pascal, pressure and density

(iii) Pressure, thrust, area and volume

(iv) Cycling of a bicycle, steering wheel of an automobile, working of sea-saw, pushing a luggage.

(v) Force, pull, push and metre

4. Answer the following questions.

(i)   Define force.

(ii) Which is equal to the product of force and perpendicular distance?

(iii) When is the force said to be an anticlockwise moment?

(iv) Why do we prefer to use a wrench/spanner with a long arm?

(v)   Calculate the force which exerts a pressure of 70 Pa on an area of 7 m².

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Worksheet 2

1. Write T for true and F for false statement.

  (i) Atmospheric pressure is maximum at sea level.

 (ii) The pressure is more if thrust acts on smaller surface area.

(iii) The pressure of atmospheric air all around us is called atmospheric pressure.

(iv) Pressure is directly proportional to the surface area of the object in contact.

 (v) A see-saw works on the principle of turning moment of a force.

2. Fill in the blanks.

  (i) When you apply force on the handle of a door, the door turns around _____.

 (ii) Greater the magnitude applied on the object, _____ is the turning effect of the object.

(iii) As a large turning moment of a force is _____, the steering wheel can be turned easily.

(iv) The SI unit of thrust is _____.

 (v) School bags have broad straps so as to _____ pressure on the shoulder.

3. Give one word for the following.

  (i) A device used to measure atmospheric pressure

 (ii) This increases with a decrease in altitude

(iii) This helps us to suck cold drink through a straw.

(iv) Thrust acting per unit area

 (v) This is commonly known as the moment of the force

4. Answer these questions.

  (i) What is the SI unit of force?

 (ii) What happens when the driver applies a force on the steering wheel of his car?

(iii) Why can a camel walk easily on a sandy surface?

(iv) What is meant by lateral pressure?

 (v) Why does an astronaut wear a special spacesuit?