Force and Pressure

Skill Based Questions

Q.1. *Multiple choice questions:*

Directions: *Read the following questions and choose the answer that best answers the questions.*

1. Pressure can be increased by

(a) Increasing both the area and the force

(b) Decreasing the area and increasing the force

(c) Increasing the area and decreasing the force

(d) Decreasing both the area and the force

2. Pressure varies with force (F) as (provided area is same)

(a) F (b) $\frac{1}{F}$ (c) F^2 (d) $\frac{1}{F^2}$

3. The pressure exerted by a woman wearing shoes with pointed heels is ..... than what an elephant can exert on the ground with one foot.

(a) Much lesser (b) Much greater (c) Both equal (d) None of these

4. Pressure exerted by a sharp needle on a surface is

(a) More than the pressure exerted by a blunt needle

(b) Less than the pressure exerted by a blunt needle

(c) Equal to the pressure exerted by a blunt needle

(d) None of these

5. It is better to use a sharp tipped nail than a blunt nail because

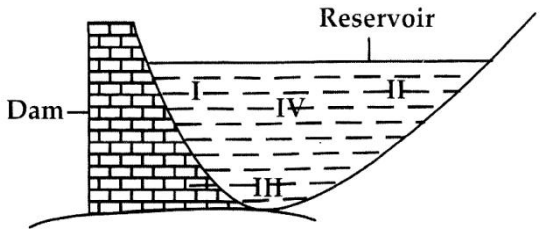
(a) The tip with the smallest area will produce a higher pressure when a small force is applied

(b) A sharp tipped nail needs a larger force to drive it into the wooden surface

(c) The sharp tip saves cost as less raw materials are required to make such nails

(d) The sharp tip has a spiralling effect when the nail is hit on the head

6. Study the figure



At what point, the pressure is greatest?

(a) I (b) II (c) III (d) IV

Q.2. ***Subjective questions:***

1. While driving a car at a very high speed, Priyanka stepped on the brakes and her car stopped about 1 metre away from the boy.

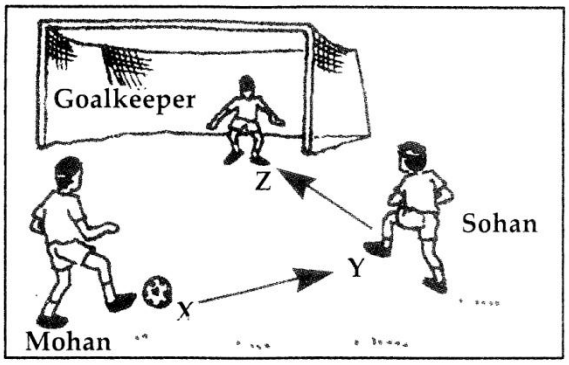
(i) How did brakes help Priyanka to stop the car?

(ii) Would it have been more or less likely for the car to knock down the boy if the incident happened on a rainy day? Explain.

Ans. ……..
……..
……..

2. While playing football, Mohan kicked the ball towards Sohan. Sohan kicked it towards the goal post. The ball was caught by the goalkeeper.

In the diagram, the label X, Y and Z show the positions of the ball at various times.



At which position did the ball

(a) Change direction? (b) Stop moving?

Ans. ……..
……..
……..

3. We are not able to see a force but we can see its effect when it interacts with objects or things around us. Give two examples of such effects?

Ans. ……..
……..
……..

4. Samaira gives a push to the swing. Her sister is sitting on the swing swings away and then come back to Samaira. The swing repeat this movement several times and finally comes to a stop. Explain/ how forces causes the swing to swing up and down and finally stop.

Ans. ……..
……..
……..

5. Name the forces that cause or help to complete the following -

(a) Activity of climbing up a hill.

Ans. ……..
……..
……..

(b) Rain falling onto the ground.

Ans. ……..
……..
……..

(c) Using clothes pegs to hold clothes on a rack to dry.

Ans. ……..
……..
……..

(d) Separating iron and steel pieces from other rubbish.

Ans. ……..
……..
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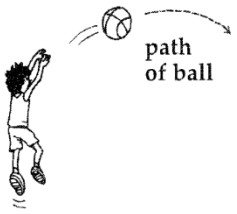
(e) Tightening of a screw in a piece of wood

Ans. ……..
……..
……..

6. Study the given diagram and answer the questions.



(a) Which force is Sohan working against when he jumps?

(b) How do you know that a force is acting on the ball after Sohan lets go of it Explain.

Ans. ……..
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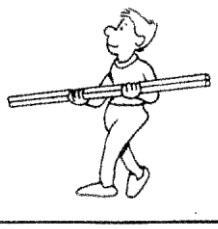
……..

7. Study the given pictures. The boy and the stilts together weigh 500 N. Complete the blank spaces.

		
Force on ground	500 N	(i) _____ N
Area in contact with ground	125 cm^2	50 cm^2
Pressure on ground	(ii) _____ N/cm^2	(iii) _____ N/cm^2

Ans. ……..

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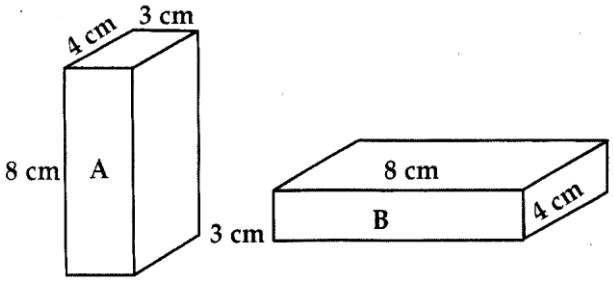
……..

8. (a) Study the given two diagrams. The diagram shows two identical blocks. Explain why the pressure under block A is different from blockB.



(b) Calculate the pressure under block B if the mass of the block is 960 g. [1 kg = 10 N]

Ans. ……..

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