

QUESTION AND ANSWERS.

1. An archer stretches her bow while taking aim at the target. She then releases the arrow, which begins to move towards the target.

Based on this information fill up the gaps in the following statements using the following terms.

(muscular, contact, non-contact, gravity, friction, shape, attraction)

(a) To stretch the bow, the archer applies a force that causes a change in its shape.

(b) The force applied by the archer to stretch the bow is an example of Muscular force.

(c) The type of force responsible for a change in the state of motion of the arrow is an example of contact force.

(d) While the arrow moves towards its target, the forces acting on it are due to gravity and that due to friction of air.

II. In the following situations identify the agent exerting the force and the object on which it acts. State the effect of the force in each case.

(a) Squeezing a piece of lemon between the fingers to extract its juice.

Ans: Changes shape of the lemon

(b) Taking out paste from a toothpaste tube.

Ans: Changes shape of the toothpaste.

(c) A load suspended from a spring while its other end is on a hook fixed to a wall.

Ans: Changes the shape of the spring.

(d) An athlete making a high jump to clear the bar at a certain height.

Ans: Change state of motion of the athlete.

3. A blacksmith hammers a hot piece of iron while making a tool. How does the force due to hammering affect the piece of iron?

Ans: The hammering of hot piece of iron changes the shape of the iron piece due to the force applied by the blacksmith.

4. An inflated balloon was pressed against a wall after it has been rubbed with a piece of synthetic cloth. It was found that the balloon sticks to the wall. What force might be responsible for the attraction between the balloon and the wall?

Ans: When an inflated balloon is rubbed with a synthetic cloth, the charges on the surface of the balloon are charged. When this balloon is now held against the wall there is force of attraction between the charged bodies of wall and balloon. This force is called **Electrostatic force**.

5. Name the forces acting on a plastic bucket containing water held above ground level in your hand. Discuss why the forces acting on the bucket do not bring a change in its state of motion.

Answer:

Forces acting on a plastic bucket containing water held above the ground level in our hand are muscular forces and gravitational forces. Both the forces are same in magnitude but in opposite directions and therefore there is no change in state of its motion.

6. A rocket has been fired upwards to launch a satellite in its orbit. Name the two forces acting on the rocket immediately after leaving the launching pad.

Ans : The two forces acting on the rocket immediately after leaving the launching pad are gravitational force and frictional force. The gravitational force acts downwards towards the earth and frictional force acts due to surrounding air.

7. When we press the bulb of a dropper with its nozzle kept in water, air in the dropper is seen to escape in the form of bubbles. Once we release the pressure on the bulb, water gets filled in the dropper. The rise of water in the dropper is due to

- (a) pressure of water.
- (b) gravity of the earth.
- (c) shape of rubber bulb.
- (d) atmospheric pressure.

Ans: Atmospheric pressure