Short Answer Questions

Q. 1. You might have noticed that when used for a long time, slippers with rubber soles become slippery. Explain the reason. [NCERT Exemplar]

Ans. When rubber soles are used for a long time, their surfaces become smooth. Hence, the friction between the sole and the floor decreases. Therefore, slippers become slippery.

Q. 2. Is there a force of friction between the wheels of a moving train and iron rails? If yes, name the type of friction. If an air cushion can be introduced between the wheel and the rail, what effect will it have on the friction? [NCERT Exemplar]

Ans. Yes, rolling friction. If an air cushion is introduced between the wheel and the rails, the friction will decrease.

Q. 3. Cartilage is present in the joints of our body which helps in their smooth movement. With advancing age, this cartilage wears off. How would this affect the movement of joints? [NCERT Exemplar]

Ans. The wearing off of a cartilage will increase the friction. As a result the movement of joints will become difficult which may lead to joint pains.

Q. 4. A marble is allowed to roll down an inclined plane from a fixed height. At the foot of the inclined plane, it moves on a horizontal surface (a) covered with silk cloth (b) covered with a layer of sand and (c) covered with a glass sheet. On which surface will the marble move the shortest distance? Give reason for your answer.
[NCERT Exemplar]

Ans. On the surface covered with sand, it will cover the least distance because sand offers maximum friction against its motion.

Q. 5. A father and son pushed their car to bring it to the side of road as it had stalled in the middle of the road. They experienced that although they had to push with all their might initially to move the car, the push required to keep the car rolling was smaller, once the car started rolling. Explain. [NCERT Exemplar]

Ans. Because initially they had to apply force to set the car in motion but once the car started rolling, they had to apply force only to balance rolling friction of the car, the value of which is very less.

Q. 6. When the cutting edge of a knife is put against a fast rotating stone to sharpen it, sparks are seen to fly. Explain the reason. [NCERT Exemplar]

Ans. Friction between grinding stone and the cutting edge of the knife produces heat. As the friction is very large in this case, a large amount of heat is produced and we see sparks flying.

Q. 7. Why kabbadi players should rub their hand with soil before they start playing?

Ans. To increase friction and to get better grip on their opponent players.