

AECS2, Mumbai-400094.

Subject: Science

Chapter 12: FRICTION

Class VIII

Text Book: Questions & Ans – MODULE 4 of 4

1. Question 1. Fill in the blanks.

- (a) Friction opposes the _____ between the surfaces in contact with each other.
- (b) Friction depends on the _____ of surfaces.
- (c) Friction produces _____
- (d) The sprinkling of powder on the carrom board _____ friction.
- (e) Sliding friction is _____ than the static friction.

Solution:

- (a) relative motion
 - (b) smoothness (or irregularities or nature)
 - (c) heat
 - (d) reduces
 - (e) less
2. Question 2. Four children were asked to arrange forces due to rolling, static and sliding frictions in decreasing order. Their arrangements are given below. Choose the correct arrangement.
- (a) rolling, static, sliding
 - (b) rolling, sliding, static
 - (c) static, sliding, rolling
 - (d) sliding, static, rolling

Solution: (c) static, sliding, rolling.

3. Question 3. Alida runs her toy car on a dry marble floor, wet marble floor, newspaper and towel spread on the floor. The force of friction acting on the car on different surfaces in increasing order will be

- (a) wet marble floor, dry marble floor, newspaper and towel.
- (b) newspaper, towel, dry marble floor, wet marble floor.
- (c) towel, newspaper, dry marble floor, wet marble floor.
- (d) wet marble floor, dry marble floor, towel, newspaper.

Answer:(a) wet marble floor, dry marble floor, newspaper and towel.

4. Question 4. Suppose your writing desk is tilted a little. A book kept on it starts sliding down. Show the direction of frictional force acting on it.

Answer: Frictional force will act upward, i.e., the direction opposite to that of sliding book.

5. Question 5. You spill a bucket of soapy water on a marble floor accidentally. Would it make it easier or more difficult for you to walk on the floor? Why?

Answer: The layer of soap makes the floor smooth due to which the friction is reduced. This makes the floor slippery and the foot cannot make a proper grip on the floor. Therefore it is difficult to walk on a soapy floor. We may slip on the floor.

6. Question 6. Explain why sportsmen use shoes with spikes.

Answer: Sportsmen use shoes with spikes to increase the friction between shoes and the surface. So the shoes with spikes do not slip while the sportsmen run and play.

7. Question 7. Iqbal has to push a lighter box and Seema has to push a similar heavier box on the same floor. Who will have to apply a larger force and why?

Answer: A heavy object produces more friction as it is pressed hard against the opposite surface. So, Seema will have to apply a larger force.

8. Question 8. Explain why sliding friction is less than static friction.

Answer: The sliding friction is less than static friction because the sliding object get less time to interlock into the contact points on the floor. So it is somewhat easier to move an object already in motion than to get it started.

9. Question 9. Give examples to show that friction is both a friend and a foe.

Answer: Some points are given below which show that friction is both a friend and a foe:

1. Friction as a friend:

- It allows us to grip and catch any object.
- It helps us to walk comfortably on the floor.
- It helps to minimise the speed or to stop any moving object.
- It helps us to write.

2. Friction as a foe:

- It causes wear and tears in objects.
- It causes damage to the parts of machines and tools which further require money to get them repaired.
- It reduces the speed of moving objects, so more force is required.
- It produces hurdles in moving any object freely.

10. Question 10. Explain why objects moving in fluids must have special shapes.

Answer: The objects moving in fluids must have a special shape to overcome the fluid friction acting on them. Efforts are therefore made to minimise the friction, so objects are given special shape having pointed fronts with little broader middle portion which gets tapered at the back called streamlined.