

## Q & A

## Subjective Q & A

Chapter Name: Friction

Subject: Science (Physics)

Class: VIII

## 2 marks Questions

**Question 1** Define friction. Also give the SI unit of friction.

**Answer :** Friction is the force that opposes the relative motion between the two surfaces of objects in contact. The force of friction always acts in the direction opposite to that of the applied force. Since friction is a type of force, it is measured in Newton (N).

**Question 2** Define:      a) Lubricants                      b) Drag

**Answer:** a) The substances used to reduce friction between two surfaces in relative motion are called lubricants e.g. oil, grease.

b) The frictional force exerted by fluids is known as drag.

### Question 3 Give reasons, Why

a) We sprinkle fine powder on carrom board?

**Answer :** We sprinkle fine powder on carrom board to reduce friction.

b) Sportsmen use shoes with spikes?

**Answer:** Sportsmen use shoes with spikes to increase friction which prevents them from slipping.

**Question 4** Explain why sliding friction is less than static friction?

**Answer :** When an object starts sliding, the contact points on its surface do not get enough time to lock in the contact points on the other object, so the sliding friction is less than the static friction.

**Question 5** Why are aeroplanes streamlined? Where do we find streamlined shapes in nature?

**Answer:** Aeroplanes are streamlined so that air offers minimum friction. Bodies of birds and fishes are streamlined.

### 3 marks Questions

**Question 6** What is the cause of friction?

**Answer :** Following are the main causes of friction:

- the interlocking of irregularities in the two surfaces in contact
- nature of surface i.e. smooth or rough
- pressure of two surfaces i.e. how hard the two surfaces are pressed together
- mass of the body of surfaces in contact
- shape of surface (e.g. flat or curved)

**Question 7** What are the factors affecting friction on an object in a fluid?

**Answer :** The factors affecting friction on an object in a fluid are:

- I. Speed of the object with respect to the fluid
- II. Shape of the object
- III. The nature of the fluid

**Question 8** Give two ways of increasing and reducing friction.

**Answer :**

**Ways to increase friction are:**

- I. Making a rough surface
- II. Increasing applied force.

**Ways to reduce friction are:**

- I. Use of lubricants
- II. Use of ball bearings and rollers.

**Question 9** What is fluid friction? Explain why objects moving in fluids must have special shapes.

**Answer :** The friction exerted by liquids and gases is called fluid friction. Object moving in a fluid must have the special shape to overcome friction and to prevent loss of energy.

### 5 marks Questions

**Question 10** Give examples to show that friction is both a friend and a foe.

**Answer :** Friction acts as both friend and foe.

**Examples of friction as a friend:**

- I. Friction helps us to walk.
- II. Friction between the paper and the pen enables us to write.
- III. Nail is fixed in the wall due to friction.
- IV. Friction between the match stick and the side surface of it, helps us to light a match stick.

**Examples of friction as a foe:**

- I. The friction between the soles of our shoes and the road causes them to wear out.
- II. Friction causes wastage of energy specially when it acts between the various parts of machines.
- III. When a tyre deflates, it is difficult to move the vehicle because of increased friction.
- IV. The friction of parts rubbing together creates heat that cause damage to a machine.