

Chapter - 12 Friction

NOTES :-

Friction or Frictional Force :-

The force acting along the two surfaces in contact that opposes the motion of one object over the other is called frictional force.

Types of Friction :-

There are 3 types of friction - Static, Limiting and Kinetic.

Static friction :- The opposing force that comes into play when one object tends to move over the surface of another, but the actual motion does not start is called Static friction.

Limiting friction :- Limiting friction is the maximum opposing force that comes into play, when one object is just at the verge of moving over the surface of another object.

Kinetic friction :- Kinetic friction is the opposing force that comes into play when

one object is actually sliding over the surface of another object.

Types of Kinetic friction:- There are two types of kinetic friction -

Sliding friction:- The opposing force that comes into play when one object is actually sliding over the surface of another object is called sliding friction.

Rolling friction:- The opposing force that comes into play when one object is actually rolling over the surface of another object is called rolling friction.

Fluid friction:- Liquids and gases, however, exert lesser pressure friction as compared to solid surfaces.

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Short Answer Type Questions | 2 ||

1. What is meant by 'streamlined shape'?

Ans. The special shape of a body or an object around which a fluid can flow, offering minimum friction is called a streamlined shape.

2. What are lubricants? Give 2 examples.

Ans. The substances that reduce friction are called lubricants.

Ex :- Oil and Grease.

3. What is the cause of friction?

Ans. Causes of friction :- The interlocking of two surfaces opposes the motion of one object over another and give rise to frictional force.

4. Why do athletes wear spiked shoes?

Ans. Athletes wear spiked shoes because spikes provided in shoes increase friction and prevent slipping.

5. What is Spring Balance? On what principle does it work?

Ans. Spring Balance is a device used to measure the force acting on an object.

It work on the principle of stretching of spring, when force is applied.

Q. What are different ways of increasing friction?
Ans. Different ways of increasing friction:-
1. By making the surface rough.
2. By making grooves.

Q. Explain why rolling friction is less than sliding friction.

Ans. Because in order for an object to roll, the force of friction between it and the surface must be large enough to keep the object from sliding.

Q. What are the factors that affect the frictional force?
Ans. Factors :-

1. The Nature of the surfaces in contact with each other.
2. The weight of the object.

Long Answer Type Questions :-

Q. Give reasons for the following :-

a) The bodies of birds are streamlined, so that they experience least amount of friction in air.

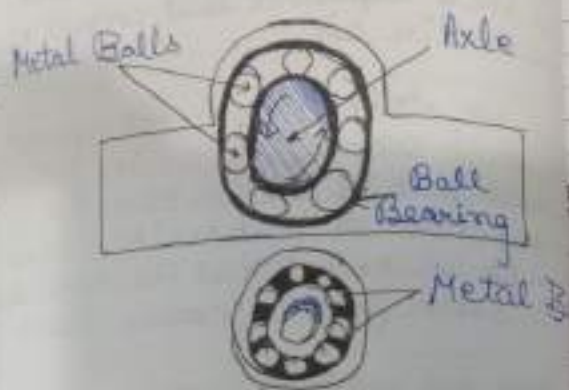
b) When we strike a matchstick against the rough surface, it catches fire. Because force of friction raises the temperature of matchstick's head to such an extent that the chemicals in it catch fire to produce flame.

c) Grooves are made in tyres. Grooves are made in tyres to increase friction and it prevents skidding of the vehicles.

d) A lubricant reduces friction. Because it fill up the irregularities of the surfaces, making them smoother.

2. What is ball bearing? How does a ball bearing reduce friction?
Explain it with the help of an example.

Ans. Ball Bearing is a hollow, circular device containing small metal balls that are fitted around the moving



Ball Bearings
used to reduce rolling
friction

parts of machine. It reduces friction
by converting sliding friction into
rolling friction.

Ex: When the axle of a machine
fitted with ball bearing rotates,
the metal balls also roll and
hence, the friction is reduced.