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# Friction

## ORAL QUESTIONS

**A. Answer these questions orally.**

1. Name the natural force resisting the relative motion of two surfaces in contact.
2. Name a device which can be used to measure the force of friction.
3. Name any two factors on which friction depends.
4. What is the relationship between the mass of a body and the force of friction on it?
5. Is rolling friction smaller or greater than the sliding friction?

**B. Fill in the blanks.**

1. Friction is caused due to _____ of the two surfaces in contact.
2. An approximate measurement of friction can be made using a _____.
3. The force required by an object to start it sliding is slightly _____ than the force required to continue its sliding.
4. Larger be the area of contact _____ is the friction.
5. Any substance that can flow is called a _____.

## PUZZLES/QUIZ

**C. Find seven terms that are related to Friction from the word maze given below.**

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | N | N | L | L | A | P | P | L | S | A | B | Z | P | P | B |
| B | L | P | E | E | J | A | I | H | P | L | L | P | P | S | X |
| F | R | I | C | T | I | O | N | V | R | H | J | E | X | L | M |
| E | T | L | F | P | K | J | T | N | I | N | H | X | B | I | B |
| D | H | J | K | W | A | K | E | Q | N | C | F | S | C | D | O |
| X | C | R | R | Q | Z | M | R | W | G | T | C | T | P | I | P |
| B | R | B | T | Z | B | A | L | L | B | E | A | R | I | N | G |
| Y | L | M | C | S | Q | E | O | S | A | Y | X | E | E | G | L |
| I | J | B | B | T | W | X | C | X | L | C | W | A | X | P | K |
| P | V | E | Z | A | X | B | K | B | A | U | E | M | V | X | M |
| K | K | R | Q | T | T | N | I | H | N | I | K | L | B | E | R |
| L | U | B | R | I | C | A | N | T | C | P | C | I | P | K | C |
| E | E | U | B | C | Z | Q | G | H | E | L | R | N | X | M | R |
| X | R | N | V | F | D | Z | L | J | R | Z | H | E | L | X | V |
| G | I | G | C | C | S | C | N | A | X | E | P | A | M | I | X |
| H | P | H | R | Q | N | N | J | R | B | Q | X | G | E | O | Z |

## CLASS TEST

### D. MCQ– Tick (✓) the correct option.

1. Friction can be reduced by
   - (a) Using fine powder ☐
   - (b) Lubricating ☐
   - (c) Using ball bearings ☐
   - (d) All of these ☐
2. Sliding friction _____ than static friction.
   - (a) Less ☐
   - (b) More ☐
   - (c) Equal ☐
   - (d) Sometimes more, Sometimes less ☐
3. Fluid friction is also known as
   - (a) Lubricants ☐
   - (b) Interlocking ☐
   - (c) Drag ☐
   - (d) Slag ☐
4. The amount of friction between two surfaces depends upon
   - (a) Roughness or smoothness of the surface ☐
   - (b) The mass of the moving object ☐
   - (c) The surface area in contact ☐
   - (d) All of these ☐
5. Friction
   - (a) Enables us to write with a chalk on the board ☐
   - (b) Enables us to stop a moving object ☐
   - (c) Enables us to light a matchstick ☐
   - (d) All of these ☐

### E. Very short answer questions.

1. Name two lubricants.

   _____

2. In which direction is friction exerted?

   _____

3. What do you understand by interlocking?

   _____

4. What is drag?

5. Name two objects having streamlined body to reduce friction.

6. What is a spring balance?

7. Which surface will cause more friction–rough or smooth?

8. Name the force responsible for wearing out sole of your shoes.

9. Which is easier to drag–a heavy box or a lighter box? Why?

10. What do you understand by 'streamlining'?

## F. Short answers questions.

1. What happens when you stop pedalling a moving bicycle?

2. If you push a heavy bookshelf and it does not move, what happens to the force you applied? Explain.

3. Can any surface be called perfectly smooth? Why/why not?

4. Friction depends upon the 'irregularities' on a surface. Do you agree with the statement?

5. How is a spring balance used to measure the force of friction?

6. The sliding friction is slightly smaller than the static friction–What do you understand by this statement?

7. How does a lubricant helps in reducing friction?

8. What is rolling friction?

9. Name a few devices in which roller bearings are used.

10. Explain with an example how a 'rolling friction' helps reducing the effort to move an object.

11. List the differences between the following.

| SLIDING FRICTION | STATIC FRICTION |
|---|---|
| | |

12. Give two examples of force of friction offered by fluids.

## G. Long answer questions.

1. Friction can transfer the energy of the moving body into heat energy and sound energy. Justify this statement giving atleast three examples.

2. Explain the various factors on which friction depends.

3. What are the different ways by which friction can be reduced?

## HOME ASSIGNMENT

## H. Think and answer.

1. Look the figure shown alongside. Why has this man placed a circular stick under the almirah?

2. Ravi's bathroom door made noise while opening and closing. What should he do to remove this noise?

3. The cars, rockets and aeroplanes all have streamlined shape. Why?

4. Friction can never be entirely eliminated. Why?

5. Neetu placed an inclined plane on a smooth table. She then placed a ball at the top of the inclined plane and let it go and marked the point where the ball came to rest. She then spread a big sheet of sand paper on the table and repeated the activity. In which of the two cases, is distance covered by the ball more? Why?

6. Before playing carrom with her friends, Jessica used some talcum power on the carrom board. Why do you think she did so?

## WORKSHEET

### I. Give reasons for the following.

1. The tyres of vehicles are made with grooves.

2. The soles of shoes are provided with uneven surfaces.

3. The shoes of the athletes have extra rubber spikes on the soles.

4. The handles of motorcycles have a rubber sheet with spikes.

5. All machines in industries and factories need to be lubricated regularly.

6. Bodies of cars and aeroplanes are made streamlined.

7. Sliding friction is less than static friction.

8. Rolling friction is much less than sliding friction.

9. We are able to walk on the ground.