Multiple Choice Questions

1. Force of friction is a
   (a) Contact force (b) non-contact force (c) both (d) none
2. Providing wheels on a moving body helps in
   (a) Increasing friction (b) Reducing friction
   (c) Giving it a specific shape (d) None of the above is true
3. The main cause of wear and tear of a machine is
   (a) Poor quality of machine (b) Friction between different moving parts
   (c) Gravitational force of earth (d) Both b and c are true
4. Ball bearing is a device which usually converts
   (a) Rolling friction into sliding friction (b) Static friction into sliding friction
   (c) Sliding friction into rolling friction (d) Rolling friction into static friction
5. A matchstick catches fire when struck against the side of the matchbox because
   (a) of the chemicals in the matchstick
   (b) of friction
   (c) Friction produces a spark and the chemicals catch fire
   (d) None of these
6. The force of friction between two bodies is _____ to the contact surface.
   (a) Parallel (b) Inclined at 30º (c) Perpendicular (d) Inclined at 60º
7. A flying machine offering the least frictional force should be
   (a) Irregular (b) Tree Like
   (c) Symmetrical with many arms (d) Streamlined
8. Which of these would produce the most friction when they rub together?
   (a) two rough surfaces (b) two smooth surfaces with oil between them
   (c) two smooth surfaces (d) Two rough surfaces with oil between them
9. It is wrong to spill oil or talcum powder on the bathroom floor as
   (a) It is messy (b) It reduces friction and make us to slip and fall
   (c) It will stain the floor (d) none of these
10. The hinges of a creaking door are oiled to
    (a) Keep them clean (b) Keep them looking black
    (c) Reduce friction (d) Increase friction
11. The easiest way to move a heavy wooden crate is to
    (a) Tie a rope to one end and pull (b) Place it on a trolley
    (c) Get friends to help (d) None of these
12. A toy car released with the same initial speed will travel farthest on
    (a) muddy surface (b) cemented surface
    (c) polished marble surface (d) brick surface
13. Which of the following is not true?
    (a) Friction helps us walk (b) Friction wears down machine parts

(c) Friction produces heat (d) Frictional force by solids is called drag

14. A ball is rolling on the road towards the north. The direction of the frictional force acting on it will be _____

(a) North (b) South (c) East (d) West

15. The opposing force that comes into play when one body tends to move over the surface of another, but the actual motion has not started yet is called

(a) Static friction (b) Limiting friction (c) Sliding friction (d) Rolling friction

Assertion-Reason

Directions: In the following questions, a statement of assertion is followed by a statement of reason. Mark the correct choice as:

(a) If both assertion and reason are true and reason is the correct explanation of assertion.

(b) If both assertion and reason are true but reason is not the correct explanation of assertion.

(c) If assertion is true but reason is false.

(d) If assertion is false but reason is true.

1. **Assertion:** Friction is caused by the irregularities on the two surfaces in contact.
   Reason: On rough surfaces, there are a large number of irregularities.
2. **Assertion:** We can live very happily if the friction is not present in nature.
   Reason: Aeroplane shape is steamlined to reduce the effort of frictional force.
3. **Assertion:** A car can run on the road because of force applied by road on the car.
   Reason: Friction provides the necessary force for motion of car starting from rest.
4. **Assertion:** Sliding friction is replaced in most machines by rolling by the use of ball bearing.
   Reason: Static friction force is self adjusting, for the given two surfaces.
5. **Assertion:** Without friction, we can walk very easily.
   Reason: There is very little friction on a polished surface.

Case Based Questions

Case: Seema rolled a ball on a cement road. The ball stops after sometime, after covering a certain distance d. A force F is exerted by the cement road surface on the surface of the moving ball, which opposes the motion of the ball and brings it to a stop. This force F opposes the motion of the ball, hence it acts in a direction opposite to the direction in which the ball is moving. If Seema rolled the same ball over a glass surface, she noted the ball travels a distance larger than d (distance covered on cement rod).

1. Name the force F exerted by the cement road on the moving ball.

   (a) Muscular force (b) Gravitational force (c) Frictional force (d) Magnetic force

2. If Seema rolled the ball on the cement road from East to West direction, then the direction of frictional force due to cement road surface acting on the ball is towards

   (a) North (b) South (c) East (d) West

3. Smooth surface produce _____ friction as compared to rough surfaces.

   (a) less (b) more (c) equal (d) none of these

4. Friction is

   (a) foe (b) friend (c) both (a) and (b) (d) none of these

ANSWER KEY

Multiple Choice Questions

1. (a)	2. (b)	3. (b)	4. (c)
5. (c)	6. (a)	7. (d)	8. (a)
9. (b)	10. (c)	11. (b)	12. (c)
13. (d)	14. (b)	15. (a)	

Assertion-Reason

1. (a)	2. (d)	3. (a)	4. (b)
5. (d)			

Case Based Questions

1. (c)	2. (c)	3. (a)	4. (c)