



Multiple Choice Questions

- A force can**
 - Only stop motion
 - Only change direction
 - Change the state of motion
 - Never change shape
- The force that pulls objects toward the Earth is**
 - Magnetic force
 - Gravitational force
 - Electrostatic force
 - Muscular force
- Which of these is a contact force?**
 - Magnetic force
 - Electrostatic force
 - Buoyant force
 - Friction
- A ball slows down on the ground mainly due to**
 - Gravity
 - Air pressure
 - Friction
 - Muscular force
- Non-contact forces act**
 - Only when objects touch
 - Without touching
 - Only on liquids
 - Only on solids
- Electrostatic force is produced due to**
 - Heat
 - Rubbing two bodies
 - Air pressure
 - Sound
- A force that can both push and pull iron objects is**
 - Magnetic force
 - Contact force
 - Electrostatic force
 - Gravitational force
- The SI unit of force is**
 - Watt
 - Joule
 - Newton
 - Pascal
- When two forces act in the same direction, the net force**
 - Becomes zero
 - Increases
 - Decreases
 - Reverses direction

10. **A force can change the shape of an object as seen when we**

- (a) Lift a book
- (b) Kick a ball
- (c) Stretch a rubber band
- (d) Walk on a road

Fill in the blanks :

11. A push or a pull on an object is called _____.
12. The force that opposes motion between surfaces is called _____.

True / False

13. Friction always helps motion.
14. A magnet exerts force on iron objects without touching them.

Very Short Type Questions

15. What is a force?
16. What are non-contact forces?

Short Type Questions

17. How does friction affect the motion of objects?
18. Describe any two examples where force changes the shape of an object.

Essay Type Questions

19. Explain different types of forces with suitable examples.
20. Describe the effects of force on the motion and shape of objects. Give detailed examples from daily life.

HOTS

21. **Assertion (A):** A moving object eventually comes to rest on its own.
Reason (R): Friction acts in the opposite direction of motion and slows objects down.
Choose the correct option:
- a) Both A and R are true and R is the correct explanation of A
 - b) Both A and R are true but R is not the correct explanation
 - c) A is true but R is false
 - d) A is false but R is true



Chapter-5 | EXPLORING FORCES

Worksheet-1

Answer & Solution

1. (b) Only change direction
2. (b) Gravitational force
3. (c) Buoyant force
4. (c) Friction
5. (b) Without touching
6. (c) Air pressure
7. (a) Magnetic force
8. (b) Joule
9. (b) Increases
10. (a) Lift a book
11. Force
12. Friction
13. False
14. True
15. A force is a push or pull that can change the state of motion or shape of an object.
16. Non-contact forces act from a distance without physical contact, such as magnetic, gravitational, and electrostatic forces.
17. Friction opposes the motion of objects and causes them to slow down or stop. It acts between surfaces in contact, such as a rolling ball slowing on the ground or a bicycle requiring more force to move on a rough road.
18. Force changes shape when we stretch a rubber band or compress a sponge. In both cases, applying force alters their size or shape temporarily or permanently.
19. Force is a push or a pull that can change the shape, size, speed, or direction of an object. There are different types of forces.
 1. **Contact Forces:** These forces act only when objects are in physical contact. Muscular force: When we lift a bag or push a table. Frictional force: When a bicycle slows down due to friction between tyres and the road.
 2. **Non-contact Forces:** These forces act without physical contact. Gravitational force: The Earth pulls objects toward itself; for example, a fruit falls from a tree. Magnetic force: A magnet attracts iron nails without touching them. Electrostatic force: A rubbed balloon can attract small pieces of paper.
 3. **Balanced and Unbalanced Forces:** Balanced forces do not change the motion of an object, like a book resting on a table. Unbalanced forces change motion, such as kicking a football.

20. A force does not always make an object move, but it can produce many effects. Some of the important effects of force are explained below:

1. Force can move a stationary object
If an object is not moving, applying force can make it start moving. Example: A football lying on the ground starts rolling when a player kicks it.
2. Force can stop a moving object
A moving object can be brought to rest by applying force in the opposite direction. Example: A bicycle stops when we press the brakes because frictional force acts against motion.
3. Force can change the speed of an object
Force can make an object move faster or slower.
 - Speed increases: A child pushing a swing harder makes it go higher and faster.
 - Speed decreases: Dragging your hand lightly against a moving ball slows it down.
4. Force can change the direction of a moving object
Sometimes, applying force changes only the direction, not the speed. Example: A batsman hitting a cricket ball will change its direction; a footballer kicking the ball sideways changes its path.
5. Force can change the shape of an object
Force can stretch, compress, bend or twist objects. Example: Pressing clay to make shapes, Crushing an empty can.
6. Force can change both speed and direction
In many cases, force changes more than one thing.
 - Example: When a bowler throws a cricket ball, the force affects its speed and direction.

21. Correct Answer: (A)

Explanation:

The assertion is true because objects slow down and stop due to friction. The reason correctly explains this, as friction opposes motion and gradually reduces the object's speed.