परमाणु ऊर्जा शिक्षण संस्था
Atomic Energy Education Society
उत्तर कुंजी / Answer Key (2025-26)

कक्षा /Class:_8 विषय /Subject: Science माह/ Month: August अंक/Marks: 40
दिया गया पाठ्यक्रम/Portion covered: Chapter 5: Exploring forces

Answer Key

Section A

MCQs (1×10 = 10 Marks)

1. (C) Friction
2. (D) Resistive force
3. (C) It becomes one-fourth
4. (C) Surface area in contact
5. (B) Non-contact force
6. (B) Gravity and magnetic force
7. (C) Both (A) and (B)
8. (D) To the left
9. (C) Gravitational force
10. (B) Produces motion or tends to produce motion

Assertion–Reason (1×4 = 4 Marks)

1. (A) Both A and R are true, and R is the correct explanation of A.
2. (A) Both A and R are true, and R is the correct explanation of A.
3. (B) Both A and R are true, but R is not the correct explanation of A.
4. (A) Both A and R are true, and R is the correct explanation of A.

Case-Based Question (1×4 = 4 Marks)

1. Frictional force
2. Because friction opposes the motion, and without applied force, the crate cannot overcome it.
3. Greater roughness increases friction, making it harder to move the crate.
4. On a smooth surface, friction is less, so less effort would be required to move the crate.

Section B

Short Answer Type (Type – 1) (2×5 = 10 Marks)

1. Balanced forces are equal in magnitude but opposite in direction, so they cancel each other out.
   Example: A book lying on a table, where gravity is balanced by the table's normal force.
2. Gravitational force acts without contact—it pulls objects towards Earth even when they are not touching.
   Example: An apple falling from a tree.
3. A car slows down when brakes are applied because friction between brake pads and wheels opposes motion, converting kinetic energy into heat.
4. When an unbalanced force acts, it changes the state of motion of an object—either starting it, stopping it, or changing its speed/direction.
5. The ball remains at rest due to the balanced forces—gravity pulling it down and the normal force from the floor pushing it upward.

Short Answer Type (Type – 2) (3×4 = 12 Marks)

1. Smooth surfaces reduce friction, while rough surfaces increase it.
   - Shoe soles are made rough (with grooves) **to increase friction** and prevent slipping.
2. Air resistance is the frictional force acting against objects moving through air.
   Examples:
   - A parachute slowing down a skydiver.
   - A cyclist facing resistance while riding fast.
3. A satellite remains in orbit because gravitational pull of Earth acts towards the center, while the satellite's inertia of motion keeps it moving forward. Together, these create a stable orbit.
4. Balanced forces**:** Equal and opposite, cancel each other. Object stays at rest or moves with constant velocity.
   Example: A book on a table.
   Unbalanced forces**:** Do not cancel, causing change in motion.
   Example: A football changing direction when kicked.