

THE INDIAN SCHOOL, KINGDOM OF BAHRAIN
HOLIDAY ASSIGNMENT- CLASS: IX (PHYSICS)
(QUESTIONS FROM PREVIOUS CBSE PAPERS)

CHAPTER-9 FORCE AND LAWS OF MOTION

1. State the action and reaction when a bullet is fired from the gun. (1)
2. Why does a karate expert suddenly reduce the speed of his hand while striking a slab of ice? Explain with reference to Newton's law of motion. (2)
3. Explain why is it difficult for a fireman to hold a hose, which ejects large amount of water at high speed. (2)
4. What is meant by inertia? Why do we jerk wet clothes before spreading them on string? (2)
5. A bullet of mass 20 g is fired from a pistol of mass 2 kg with a horizontal velocity of 150 m/s. Calculate the recoil velocity of the pistol. (2)
6. State any three changes that force can bring about on a body. Give one example for each. (3)
7. A) Why does the rider fall in the forward direction when a running horse stops suddenly?
b) Why is it easier to stop a tennis ball in comparison to a cricket ball moving with the same speed? (3)
8. A man pushes a box of mass 50 kg with a force of 80 N. What will be the acceleration of the box due to the force? What would be the acceleration if the mass were doubled? (3)
9. A) Explain why is it difficult to walk on sand.
B) Why does the recoil of the heavy gun on firing is not so strong as of a light gun using the same cartridge?
C) A constant force acts on an object of 5 kg for a period of 2 s. It increases the velocity of the object from 3 m/s to 7 m/s. Find the magnitude of the applied force. If the force was applied for a period of 5 s, what would be the final velocity of the object? (5)
10. A) State Newton's second law of motion. By using this law deduce an expression for force.
B) Obtain the unit of force from the above law and define it.
C) From a rifle of mass 4 kg a bullet of mass 50 g is fired horizontally with an initial velocity of 40 m/s. Calculate the initial recoil velocity of the rifle. (5)
11. A) State the law of conservation of momentum.
B) Mention two factors which determine the momentum of a body.
C) Prove the law of conservation of momentum with clear explanation, diagram and equation. (5)
12. A) State Newton's first and third laws of motion.
B) A car of mass 1800 kg moving with a speed of 10 m/s is brought to rest after covering a distance of 50 m. calculate the force acting on the car. (5)
13. A) Define momentum of a body.
B) Give the SI unit of momentum. Name the physical quantity which determines its direction.
C) How much momentum will be dumb-bell of mass 10 kg transfer to the floor if it falls from a height of 80 cm. Take its downward acceleration to be 10 m/s^2 . (5)