

CLASS 11

PHYSICS

EXTRA QUESTIONS

Class 11 Physics Chapter 4 Laws of Motion – Extra Questions with Answers

Extra practice questions for Class 11 Physics Chapter 4 (Laws of Motion), beyond the textbook. These Class 11 Physics Chapter 4 important questions are handy for last-minute exam practice.

Contents

Very Short Answer Questions (1 mark)

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Class 11 Physics Chapter 4 – Solutions and Notes

Extra practice questions for Class 11 Physics Chapter 4 (Laws of Motion), beyond the textbook. These Class 11 Physics Chapter 4 important questions are handy for last-minute exam practice.

Very Short Answer Questions (1 mark)

Q1. State Newton's first law of motion.

Ans: A body continues in its state of rest or uniform motion in a straight line unless acted upon by an external unbalanced force.

Q2. What is the SI unit of force?

Ans: Newton (N).

Q3. Define momentum.

Ans: Momentum is the product of mass and velocity, $p=mv$.

Q4. Is friction a self-adjusting force? Explain in one line.

Ans: Yes, static friction adjusts its magnitude (up to a limit) to exactly balance the applied force to prevent motion.

Q5. What provides the centripetal force for a car turning on a level road?

Ans: Friction between the tyres and the road.

Short Answer Questions (2–3 marks)

Q6. A force of 10 N acts on a mass of 2 kg. Find the acceleration produced.

Ans: $a=F/m=10/2=5 \text{ m/s}^2$.

Q7. A bullet of mass 0.02 kg moving at 300 m/s embeds in a stationary block of mass 5.98 kg. Find the common velocity after collision using momentum conservation.

Ans: $m_1u_1=(m_1+m_2)v$; $0.02(300)=(6)v$; $v=6/6=1 \text{ m/s}$.

Q8. A block of mass 4 kg rests on a surface with coefficient of static friction 0.5. Find the maximum static friction force ($g=10 \text{ m/s}^2$).

Ans: $f_s(\text{max})=\mu_s N=0.5(4)(10)=20 \text{ N}$.

Higher-Order Thinking / Application Questions

Q9. A body of mass 5 kg is pulled by a horizontal force of 20 N on a rough surface with $\mu_k=0.2$ ($g=10 \text{ m/s}^2$). Calculate the net acceleration of the body, showing how friction opposes the applied force.

Ans: Normal force $N=mg=5(10)=50 \text{ N}$. Kinetic friction $f_k=\mu_k N=0.2(50)=10 \text{ N}$, opposing motion. Net force = $20-10=10 \text{ N}$. Acceleration $a=F_{\text{net}}/m=10/5=2 \text{ m/s}^2$.

Q10. Two blocks of masses 3 kg and 2 kg are connected by a string over a frictionless pulley, with the 3 kg block on a table and the 2 kg block hanging. Explain the concept used and calculate the system's acceleration ($g=10 \text{ m/s}^2$, ignore friction on the table).

Ans: This uses Newton's second law applied to a connected system: the tension is the same throughout an ideal string, and both blocks share the same magnitude of acceleration. For the hanging block: $m_2g-T=m_2a$. For the block on table: $T=m_1a$. Adding: $m_2g=(m_1+m_2)a$, so $a=m_2g/(m_1+m_2)=2(10)/5=4 \text{ m/s}^2$.

Class 11 Physics Chapter 4 – Solutions and Notes

For complete step-by-step answers and a quick summary, check the [Class 11 Physics Chapter 4 Solutions](#) and [Class 11 Physics Chapter 4 Revision Notes](#).

See also: [Chapter 1](#) | [Chapter 2](#) | [Chapter 3](#) | [Chapter 4](#)

Practice more: [Chapter 1](#) | [Chapter 2](#) | [Chapter 3](#)

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