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CLASS 11

Physics

Chapterwise Important Questions

14 sections | 56 original questions | 2026-27

Read each chapter, attempt the questions, and support explanations with working or textbook evidence.

Choose a chapter or topic

Physics	
Chapter 1	Units and Measurements
Chapter 2	Motion in a Straight Line
Chapter 3	Motion in a Plane
Chapter 4	Laws of Motion
Chapter 5	Work, Energy and Power
Chapter 6	System of Particles and Rotational Motion
Chapter 7	Gravitation
Chapter 8	Mechanical Properties of Solids
Chapter 9	Mechanical Properties of Fluids
Chapter 10	Thermal Properties of Matter
Chapter 11	Thermodynamics
Chapter 12	Kinetic Theory
Chapter 13	Oscillations
Chapter 14	Waves

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CHAPTER 1

Units and Measurements

Physics

1. Check the dimensional consistency of $v = u + at$.
2. A length is measured as 2.50 cm. Explain what the final zero communicates.
3. Distinguish random error from systematic error in measurement.
4. If $x = ab$ and percentage uncertainties are 2 percent and 3 percent, estimate the maximum percentage uncertainty in x.

CHAPTER 2

Motion in a Straight Line

Physics

1. A body starts from rest with acceleration 3 m/s^2. Find its displacement in 4 s.
2. Explain what negative acceleration means and why it need not always mean slowing down.
3. Draw position-time graphs for rest and uniform velocity.
4. A velocity-time graph crosses the time axis. Explain how distance and displacement are obtained.

CHAPTER 3

Motion in a Plane

Physics

1. Resolve a 10 N vector making 30 degrees with the horizontal into components.
2. Derive the time of flight for a projectile returning to its launch level.
3. Why does uniform circular motion involve acceleration at constant speed?

4. A boat crosses a river with a current. Explain how the ground velocity is found by vector addition.

CHAPTER 4

Laws of Motion

Physics

1. Draw a free-body diagram of a block on a rough horizontal surface pulled by a force.

2. Explain why action and reaction do not cancel in a single object's equation of motion.

3. A 5 kg block experiences a net force of 15 N. Find its acceleration.

4. Compare limiting friction and kinetic friction and state how normal reaction affects them.

CHAPTER 5

Work, Energy and Power

Physics

1. Derive the work-energy theorem for a constant force along straight-line motion.

2. When can a force act without doing work? Give a physical example.

3. A 2 kg object changes speed from 3 m/s to 5 m/s. Find the net work done.

4. Compare conservative and non-conservative forces using energy changes.

CHAPTER 6

System of Particles and Rotational Motion

Physics

1. Find the centre of mass of 1 kg and 3 kg masses at x=0 m and x=4 m.
2. Explain the condition for rotational equilibrium of a rigid body.
3. Compare angular momentum and torque and state their relation.
4. Why does a skater spin faster when pulling the arms inward if external torque is negligible?

CHAPTER 7

Gravitation

Physics

1. Derive the relation between orbital speed and orbital radius for a circular satellite orbit.
2. Why does gravitational acceleration decrease with increasing height above Earth?
3. Compare gravitational field strength and gravitational potential.
4. If a planet's mass doubles while its radius is unchanged, how does surface gravity change?

CHAPTER 8

Mechanical Properties of Solids

Physics

1. Distinguish stress from strain and state their SI units.
2. Explain the meaning of Young's modulus using a stress-strain graph.

3. Two wires of the same material and length have different areas. Compare extension under the same load.

4. Why does elastic deformation differ from permanent deformation?

CHAPTER 9

Mechanical Properties of Fluids

Physics

1. Explain the pressure difference between two points at different depths in a static liquid.

2. Use continuity to explain the speed change in a narrowing pipe.

3. State the assumptions behind Bernoulli's equation.

4. Explain terminal velocity in terms of the forces on a falling sphere in a viscous fluid.

CHAPTER 10

Thermal Properties of Matter

Physics

1. Compare heat capacity and specific heat capacity.

2. Explain why temperature remains constant during melting of a pure substance at fixed pressure.

3. A 0.5 kg sample with specific heat 400 J/(kg K) warms by 20 K. Find the heat supplied.

4. Compare conduction, convection and radiation using everyday examples.

CHAPTER 11

Thermodynamics

Physics

1. State the first law using the convention that work done by the system is positive.
2. A gas absorbs 500 J and does 200 J of work. Find the change in internal energy.
3. Compare isothermal and adiabatic processes.
4. Why can heat not be completely converted to work in every cycle of a heat engine?

CHAPTER 12

Kinetic Theory

Physics

1. Explain the origin of gas pressure in the kinetic model.
2. How does absolute temperature relate to average translational kinetic energy?
3. State the assumptions of an ideal gas model.
4. Compare the rms speeds of two gases at the same temperature but different molecular masses.

CHAPTER 13

Oscillations

Physics

1. Show that the restoring acceleration in simple harmonic motion is proportional to displacement and opposite in direction.
2. How does doubling a spring-mass system's mass affect its period?
3. Describe the exchange of kinetic and potential energy during one oscillation.

4. State the conditions under which a simple pendulum approximately performs SHM.

CHAPTER 14

Waves

Physics

1. Distinguish transverse and longitudinal waves using particle motion.

2. A wave has speed 300 m/s and frequency 150 Hz. Find its wavelength.

3. Explain the formation of standing waves on a stretched string.

4. Two nearby sound frequencies produce beats. Explain how beat frequency relates to the original frequencies.

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