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CLASS 11

Physics

Chapterwise PYQs

10 sections | 24 questions | 2022, 2023, 2025

Previous school-examination questions

Selected and rewritten questions are grouped under the current chapters or course topics. Each question shows its examination year. A chapter appears only when a verified question is available.

Choose a chapter or topic

Physics		
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Chapter 14	Waves	1

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CHAPTER 1

Units and Measurements

Physics

1. 2022

Which pair has different dimensions: torque/work, kinetic energy/work, Planck constant/torque, or force/weight?

CHAPTER 2

Motion in a Straight Line

Physics

2. 2025

A car accelerates from rest at α, then brakes at β to rest in total time t. Find peak speed and total distance.

3. 2023

A ball is projected upwards at 29.4 m/s. Find its return time, taking g=9.8 m/s^2 and neglecting drag.

4. 2022

State velocity and acceleration at a vertically thrown object's highest point, neglecting air resistance.

CHAPTER 3

Motion in a Plane

Physics

5. 2023

A swimmer moves at 4 km/h relative to water across a 1 km-wide river flowing at 3 km/h. Swimming perpendicular to the current, find crossing time and drift.

6. 2023

Derive a projectile's trajectory and same-level range for launch speed V and angle θ.

7. 2022

A projectile has initial horizontal and vertical velocities 20 and 10 m/s. Find its same-level range for g=10 m/s^2.

8. 2022

Find the projection angle for which horizontal range equals maximum height.

9. 2022

Derive the centripetal acceleration of uniform circular motion.

CHAPTER 4

Laws of Motion

Physics

10. 2025

Derive the maximum safe vehicle speed on a rough banked curve of radius r.

11. 2023

State conservation of linear momentum and derive it from Newton's laws.

12. 2023

A body is just in equilibrium on a 30° rough slope. Find its acceleration at 45°, with equal static/kinetic friction coefficients and g=10 m/s^2.

13. 2022

A 0.5 kg ball moving at 10 m/s is returned straight back at the same speed. Find its impulse.

CHAPTER 5

Work, Energy and Power

Physics

14. 2025

Derive the kinetic-energy loss when masses m_1 and m_2 with velocities u_1 and u_2 stick together after collision.

15. 2023

Show that work equals the area under a force–position graph.

16. 2023

Derive a spring's elastic potential energy and sketch potential and kinetic energy against extension.

17. 2022

A force $F(x)=2x^2+x$ N moves an object from x=0 to x=3 m. Calculate its work.

18. 2022

Prove conservation of mechanical energy when only conservative forces do work.

CHAPTER 7

Gravitation

Physics

19. 2025

Derive circular-orbit speed and total energy for a satellite at height h above a planet of mass M and radius R.

CHAPTER 9

Mechanical Properties of Fluids

Physics

20. 2025

Explain capillarity, derive capillary rise and discuss what happens if the tube is too short.

21. 2025

State Bernoulli's theorem and derive the speed of efflux from a tank.

CHAPTER 11

Thermodynamics

Physics

22. 2025

Derive $C_p - C_v = R$ for one mole of an ideal gas.

CHAPTER 13

Oscillations

Physics

23. 2025

Derive a simple pendulum's small-oscillation period.

CHAPTER 14

Waves

Physics

24. 2025

Give two differences between longitudinal and transverse waves.

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