CLASS 11 PHYSICS EXTRA QUESTIONS

Class 11 Physics Chapter 5 Work, Energy and Power – Extra Questions with Answers

Extra practice questions for Class 11 Physics Chapter 5 (Work, Energy and Power), beyond the textbook. These Class 11 Physics Chapter 5 important questions are handy for last-minute exam practice.

Contents

Extra practice questions for Class 11 Physics Chapter 5 (Work, Energy and Power), beyond the textbook. These Class 11 Physics Chapter 5 important questions are handy for last-minute exam practice.

Very Short Answer Questions (1 mark)

Q1. Write the formula for kinetic energy.
Ans: KE = ½mv^2.

Q2. What is the SI unit of work?
Ans: Joule (J).

Q3. When is the work done by a force zero even if displacement occurs?
Ans: When the force is perpendicular to the displacement (θ=90°).

Q4. Is kinetic energy conserved in an inelastic collision?
Ans: No, only momentum is conserved; kinetic energy is partially lost.

Q5. Write the relation between power, force, and velocity.
Ans: P = F·v (power equals force dot velocity).

Short Answer Questions (2–3 marks)

Q6. A force of 15 N moves a body 4 m in the direction of the force. Find the work done.
Ans: W=Fd cos0°=15(4)(1)=60 J.

Q7. A body of mass 2 kg falls freely from a height of 5 m. Find its kinetic energy just before hitting the ground (g=10 m/s^2).
Ans: By conservation of energy, KE gained = PE lost = mgh = 2(10)(5) = 100 J.

Q8. A motor lifts a 50 kg mass to a height of 10 m in 5 seconds. Find the power delivered (g=10 m/s^2).
Ans: W=mgh=50(10)(10)=5000 J. P=W/t=5000/5=1000 W.

Higher-Order Thinking / Application Questions

Q9. A 1 kg ball moving at 6 m/s collides head-on with a stationary 2 kg ball and sticks to it. Calculate the velocity after collision and the kinetic energy lost, explaining why this is classified as a perfectly inelastic collision.
Ans: By momentum conservation: m1u1 = (m1+m2)v; 1(6)=(3)v; v=2 m/s. Initial KE = ½(1)(6^2)=18 J. Final KE = ½(3)(2^2)=6 J. KE lost = 18−6=12 J. This is perfectly inelastic because the two bodies move with a common velocity after collision (they stick together), and kinetic energy is not conserved even though momentum is — the lost 12 J converts to heat, sound, and deformation.

Q10. A pendulum bob of mass 0.5 kg is released from a height of 0.2 m above its lowest point. Using energy conservation, find its speed at the lowest point, and explain why air resistance would make this calculation only approximate in reality.
Ans: By conservation of mechanical energy: mgh = ½mv^2, so v=√(2gh)=√(2×10×0.2)=√4=2 m/s. This calculation assumes mechanical energy (KE+PE) is fully conserved, which requires no non-conservative forces. In reality, air resistance does negative work on the bob, converting some mechanical energy into heat, so the actual speed at the lowest point would be slightly less than the calculated 2 m/s.

Class 11 Physics Chapter 5 – Solutions and Notes

For complete step-by-step answers and a quick summary, check the Class 11 Physics Chapter 5 Solutions and Class 11 Physics Chapter 5 Revision Notes.

See also: Chapter 1 | Chapter 2 | Chapter 3 | Chapter 4 | Chapter 5

Practice more: Chapter 1 | Chapter 2 | Chapter 3 | Chapter 4

Quick revision: Chapter 1 | Chapter 2 | Chapter 3 | Chapter 4