Physics Unit 1 & 2 — Practice Exam 2 — Answers & Explanations

Answers to the 15 questions in the free preview.

Physics

1. A. 50 km/h

Average speed = distance ÷ time = 150 ÷ 3 = 50 km/h.

2. See explanation below — this question is not auto-marked.

Model answer: a = (v − u) / t = (20 − 0) / 8 = 2.5 m/s². F = ma = 1000 × 2.5 = 2500 N. Award marks for the correct acceleration formula/substitution and the correct force calculation using F = ma.

3. See explanation below — this question is not auto-marked.

Model answer: mass is the amount of matter in an object, measured in kilograms (kg), and does not change with location. Weight is the gravitational force acting on that mass, measured in Newtons (N), and depends on the local gravitational field strength (weight = mg). Award marks for correctly distinguishing the two quantities, their units, and the mg relationship.

4. See explanation below — this question is not auto-marked.

Model answer: v = u + gt = 0 + 9.8 × 3 = 29.4 m/s. s = ½gt² = ½ × 9.8 × 9 = 44.1 m. Award marks for correctly applying both kinematics formulas with g = 9.8 m/s².

5. See explanation below — this question is not auto-marked.

Model answer: 1st law (inertia) — an object at rest/in motion stays that way unless acted on by a net force (e.g. passengers lurch forward when a car brakes suddenly). 2nd law (F=ma) — acceleration is proportional to net force and inversely proportional to mass (e.g. it's harder to push a loaded shopping trolley than an empty one). 3rd law (action-reaction) — every force has an equal and opposite reaction (e.g. a swimmer pushes water backward and is propelled forward). Award marks per correctly stated law with a valid matching example.

6. B. P = VI

Electrical power is the product of voltage and current: P = VI.

7. C. Current

In a series circuit, there is only one path for charge to flow, so the current is the same at every point.

8. A. Voltage

In a parallel circuit, each branch connects across the same two points, so the voltage across each branch is equal.

9. A. Ohm

Electrical resistance is measured in Ohms (Ω).

10. C. Coulomb

Electric charge is measured in Coulombs (C).

11. B. Rubber

Rubber does not readily allow electric current to flow, making it a good insulator; the metals listed are all good conductors.

12. D. 2 Ω

R = V / I = 6 / 3 = 2 Ω.

13. C. 15 Ω

In series, resistances add directly: 5 + 10 = 15 Ω.

14. A. 4 Ω

For two equal resistors in parallel, total resistance is half of one: 8 ÷ 2 = 4 Ω.

15. D. To break the circuit if current gets too high

A fuse contains a thin wire that melts and breaks the circuit if the current exceeds a safe level, protecting the circuit from damage.

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PREVIEW

That’s the end of the preview answers

These are the answers to the 15 preview questions. The full answer key covers all 30 questions in Physics Unit 1 & 2 — Practice Exam 2, with the working behind every mark.

STILL TO COME	QUESTIONS	MARKS
Physics	15	15

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