

P3 Revision Questions

Part 2

Question 1 of 50

- No CO₂ released immediately, quiet, cheaper to run

Answer 1 of 50

- 1000metres

Question 2 of 50

- Give 2 disadvantages of using a battery powered car

Answer 2 of 50

- Batteries take up space, limited range, expensive, takes a long time to charge, needs charging frequently

Question 3 of 50

- Where do battery powered cars get their energy from?

Answer 3 of 50

- The mains electricity (from power stations/
burning fossil fuels)

Question 4 of 50

- What are alternatives to petrol and diesel in the future?

Answer 4 of 50

- Biofuel and hydrogen

Question 5 of 50

- What is an advantage and a disadvantage of biofuel and solar powered cars?

Answer 5 of 50

- Reduction in pollution, causes pollution to make them (but gives an overall reduction in carbon dioxide)

Question 6 of 50

- Give 4 reasons why cars have increased fuel consumptions

Answer 6 of 50

- More kinetic energy, more drag/ friction, driving styles, road conditions

Question 7 of 50

- What is the equation for momentum? What is it measured in?

Answer 7 of 50

- Momentum = mass x velocity
Measured in kgm/s

Question 8 of 50

- What is force in terms of momentum?

Answer 8 of 50

- Force is the rate of change of momentum

Question 9 of 50

- Why can stopping suddenly cause injury?

Answer 9 of 50

- Lose momentum quickly, so force is increased

Question 10 of 50

- Name 4 primary safety features

Answer 10 of 50

- ABS, traction control, electric windows, paddle shift gears

Question 11 of 50

- Name 4 secondary safety features

Answer 11 of 50

- Roll cage, seat belts, collapsible steering column, air bags, support beams

Question 12 of 50

- What is the difference between a primary and a secondary safety feature?

Answer 12 of 50

- Primary is to prevent accident from happening, secondary is to reduce injury in the event of a crash

Question 13 of 50

- Why do seatbelts need to be replaced after a collision?

Answer 13 of 50

- Constant They stretch

Question 14 of 50

- How do seatbelts prevent injury during a collision?

Answer 14 of 50

- Increase the time of a collision and convert kinetic energy into heat

Question 15 of 50

- What is force in terms of momentum?

Answer 15 of 50

- Force = rate of change in momentum

Question 16 of 50

- How do the safety features of a car reduce the force in a collision?

Answer 16 of 50

- Momentum is lost over a longer amount of time, reducing the force

Question 17 of 50

- Why do objects with a greater mass and speed need a larger force to stop them?

Answer 17 of 50

- They have more momentum to lose

Question 18 of 50

- Give 3 reasons why crumple zones are useful

Answer 18 of 50

- They change shape, absorb energy and reduce injuries

Question 19 of 50

- Why do cars need to be tested for crashing?

Answer 19 of 50

- To improve car safety features

Question 20 of 50

- What is ABS? Give two advantages of it

Answer 20 of 50

- Antilock braking steering. Decreases braking distance and more control of the car (no skidding)

Question 21 of 50

- What can you do to reduce friction?

Answer 21 of 50

- Streamline, smaller contact with surface, lubrication

Question 22 of 50

- What happens when objects fall in a vacuum?

Answer 22 of 50

- They accelerate at a rate of 10m/s^2

Question 23 of 50

- What 2 things can you do to increase your terminal velocity?

Answer 23 of 50

- Increase weight, make it more streamline

Question 24 of 50

- Why do objects reach a terminal velocity?

Answer 24 of 50

- The forces of weight and air resistance are balanced

Question 25 of 50

- What is meant by terminal velocity?

Answer 25 of 50

- It also increases

Question 26 of 50

- How does gravity act on objects of different masses?

Answer 26 of 50

- It accelerates all masses at the same rate

Question 27 of 50

- What will happen to the strength of the gravitational field if i) there are changes in the atmosphere ii) You change your position on earth?

Answer 27 of 50

- i) Nothing
- ii) Decreases the higher you get

Question 28 of 50

- What is gravitational potential energy?

Answer 28 of 50

- Energy an object has due to its position in a gravitational field

Question 29 of 50

- What is energy measured in?

Answer 29 of 50

- Joules

Question 30 of 50

- What is the formula for gravitational potential energy?

Answer 30 of 50

- $GPE = mgh$

Question 31 of 50

- What can you do to increase gravitational potential energy?

Answer 31 of 50

- Increase mass or height (or gravitational strength)

Question 32 of 50

- What happens in terms of energy when an object falls?

Answer 32 of 50

- GPE gets converted to KE (and heat)

Question 33 of 50

- Why do objects reach terminal velocity in terms of energy?

Answer 33 of 50

- Object has constant KE, the remaining GPE gets converted to heat

Question 34 of 50

- How does braking slow a car down?

Answer 34 of 50

- Converts KE into heat energy

Question 35 of 50

- What happens to the GPE if you double the mass of an object?

Answer 35 of 50

- It doubles

Question 36 of 50

- What happens to the GPE if you double the height of an object?

Answer 36 of 50

- It doubles

Question 37 of 50

- What happens to the KE of an object if you double its speed?

Answer 37 of 50

- It quadruples

Question 38 of 50

- What happens to the KE of an object if you double its mass?

Answer 38 of 50

- It doubles

Question 39 of 50

- What happens to the speed of an object if you double its kinetic energy?

Answer 39 of 50

- It increases by a factor of $\sqrt{2}$

Question 40 of 50

- When does an object have its most KE?

Answer 40 of 50

- Just before it hits the floor

Question 41 of 50

- Why might a rollercoaster cart not reach its original height again after its rolled along a track?

Answer 41 of 50

- It loses energy as heat due to friction

Question 42 of 50

- What happens when a moving roller coaster cart moves up a hill?

Answer 42 of 50

- KE gets converted to GPE

Question 43 of 50

- Give 2 reasons why we have speed limits?

Answer 43 of 50

- Safety for pedestrians and to prevent crashes

Question 44 of 50

- What does it mean when speed is 'constant'?

Answer 44 of 50

- Speed is not changing

Question 45 of 50

- What is meant by a resultant force?

Answer 45 of 50

- The overall force acting on an object

Question 46 of 50

- What is the reaction time of a driver?

Answer 46 of 50

- The time taken for a driver to react to something

Question 47 of 50

- Why is your braking distance greater when it is icy?

Answer 47 of 50

- Less friction to do less work

Question 48 of 50

- What is kilowatt?

Answer 48 of 50

- 1000 watts

Question 49 of 50

- What is acid rain? What is it caused by?

Answer 49 of 50

- Rain that has been made more acidic by pollutant gases

Question 50 of 50

- Why does increasing speed increase braking?
What is streamlining?

Answer 50 of 50

- More KE to get rid of. Shaping an object to reduce air resistance