P1 Quick Revision Questions

P1 for AQA GCSE examination 2018 onwards

Question 1 .... of 50

- What type of energy is stored in a stretched elastic band?

Answer 1 .... of 50

- Elastic potential energy.

Question 2 .... of 50

- What type of energy is stored when an object is moved upwards?

Answer 2 .... of 50

- Gravitational potential energy

Question 3 .... of 50

- What is the equation for gravitational potential energy?

Answer 3 .... of 50

- $E_p = mgh$

Question 4 .... of 50

- What is the equation for elastic potential energy?

Answer 4 .... of 50

- $E_e = ½ ke^2$

Question 5 .... of 50

- What is the equation for work done?

Answer 5 .... of 50

- Work done = force x distance.

Question 6 .... of 50

- What is the equation for kinetic energy?

Answer 6 .... of 50

- $E_k = \frac{1}{2}mv^2$

E_k = kinetic energy

m = mass

v = velocity

Question 7 .... of 50

- What is the energy transfer when a moving object encounters friction?

Answer 7 .... of 50

- Kinetic energy → Heat energy

Question 8 .... of 50

- What is the equation for power?

Answer 8 .... of 50

- $P = \frac{W}{t}$

P = Power

W = Work done

t = time

Question 9 .... of 50

- What is the equation for specific heat capacity?

Answer 9 .... of 50

- $\Delta E = mc\Delta\theta$

ΔE = **Change in** energy

m = mass

c = specific heat capacity

$\Delta\theta$ = **change in** temperature

Question 10 .... of 50

- Why does water take longer to heat up than copper?

Answer 10 .... of 50

- Because it has a higher specific heat capacity therefore more energy is required to raise it's temperature.

Question 11 .... of 50

- What is the unit of Gravitational Potential Energy?

Answer 11 .... of 50

- Joules

Question 12 .... of 50

- What is the unit of speed?

Answer 12 .... of 50

- m/s

Question 13 .... of 50

- Jack walks on a level floor. Does he gain or lose any gravitational potential energy?

Answer 13 .... of 50

- Stays the same, because his height above the floor does not change

Question 14 .... of 50

- What's the unit of Elastic Potential Energy?

Answer 14 .... of 50

- Joules

Question 15 .... of 50

- What is my weight on the Earth if my mass is 93kg?

(g=10 N/kg)

Answer 15 .... of 50

- $W = m \times g = 93 \times 10 = 930\ N$

Question 16 .... of 50

- What's the unit of Kinetic Energy?

Answer 16 .... of 50

- Joules

Question 17 .... of 50

- I’m driving a car at 10 m/s. My mass is 60 kg. Calculate my kinetic energy?

Answer 17 .... of 50

- $E_k = \frac{1}{2} \times m \times v^2 = 0.5 \times 60 \times 10^2 = 3000 \text{ J}$

Question 18 .... of 50

- What happens to your kinetic energy if your speed doubles?

Answer 18 .... of 50

- Quadruples.

Question 19 .... of 50

- What is the unit of work done?

Answer 19 .... of 50

- Joules

Question 20 .... of 50

- What is the unit of force?

Answer 20 .... of 50

- Newtons

Question 21 .... of 50

- Kim is holding a 30 N bag without moving.
  How much work is she doing?

Answer 21 .... of 50

- 0

Question 22 .... of 50

- What is the unit of mass?

Answer 22 .... of 50

- kg

Question 23 .... of 50

- What is the unit of weight?

Answer 23 .... of 50

- Newtons

Question 24 .... of 50

- What is the unit of power?

Answer 24 .... of 50

- Watts

Question 25 .... of 50

- What is one Watt of power?

Answer 25 .... of 50

- One Joule of energy transferred in one second

Question 26 .... of 50

- What is a κW?

Answer 26 .... of 50

- 1kW=1,000 W

Question 27 .... of 50

- A motor does 2kJ of work in 1 minute. What power does it develop?

Answer 27 .... of 50

- $P = \frac{W}{t} = \frac{2000}{60} = 33.3\ W$

Question 28 …. of 50

- What's the difference between heat and temperature?

Answer 28 .... of 50

- When something is heated, thermal energy is transferred to it. Temperature is a measure of how hot or cold something is.

Question 29 .... of 50

- What is the unit of specific heat capacity?

Answer 29 .... of 50

- $J/kg°C$

Question 30 .... of 50

- Why oiling the moving parts of a machine improves its efficiency?

Answer 30 .... of 50

- It reduces the friction, so less energy is wasted as thermal energy

Question 31 .... of 50

- Is solar energy reliable?

Answer 31 .... of 50

- No, you cannot use solar energy during the night or in bad weather

Question 32 .... of 50

- Can energy be transferred in a vacuum?

Answer 32 .... of 50

- Yes

Question 33 .... of 50

- Which is the only way energy can be transferred in a vacuum?

Answer 33 .... of 50

- Radiation

Question 34 .... of 50

- Is nuclear energy renewable or not?

Answer 34 .... of 50

- Non-renewable. Supplies will run out.

Question 35 .... of 50

- Describe the energy transfer when a ball held above the ground is allowed to fall.

Answer 35 .... of 50

- Before the ball is dropped it has a store of gravitational potential energy. As it falls, energy is transferred to a store of kinetic energy.

Question 36 .... of 50

- What affects the amount of work done by a force?

Answer 36 .... of 50

- The magnitude of the force and its displacement.

Question 37 .... of 50

- A PlayStation is rated at 350 W. How much energy is transferred in 10 s?

Answer 37 .... of 50

- $P = \frac{E}{t}, \quad E = P \times t = 350 \times 10 = 3500\,J$

Question 38 .... of 50

- Define specific heat capacity

Answer 38 .... of 50

- The energy needed to raise the temperature of 1 kg of a substance by 1 °C

Question 39 .... of 50

- Why water is used to cool car engines?

Answer 39 .... of 50

- Water has a very high specific heat capacity, so it can absorb a large amount of thermal energy from a hot object for a given temperature change of the water.

Question 40 .... of 50

- Why clothing made from wool is a good insulator?

Answer 40 .... of 50

- Air is trapped between the wool fibres. Wool and air are bad conductors of thermal energy.

Question 41 .... of 50

- What is the law of conservation of energy?

Answer 41 .... of 50

- The total energy in a closed system is always constant. Energy cannot be created or destroyed.

Question 42 .... of 50

- What is the equation for efficiency?

Answer 42 .... of 50

$$efficiency = \frac{useful\ energy\ (or\ power) output}{total\ energy\ (or\ power) input} \times 100\%$$

Question 43 .... of 50

- Calculate the efficiency of an LED light bulb which consumes 12 J of electrical energy and produces 9 J of light energy

Answer 43 .... of 50

- $eff = \frac{9}{12} \times 100\% = 75\%$

Question 44 .... of 50

- Give an example of an electrical device that transfers energy to a kinetic energy store

Answer 44 .... of 50

- A fan, a drill, an electric car…

Question 45 .... of 50

- Where does tidal energy come from?

Answer 45 .... of 50

- The gravitational potential energy store of the Moon

Question 46 .... of 50

- Why the amount of energy we need in the world increases every year?

Answer 46 .... of 50

- The population of the world is increasing, more countries are developing and need more energy for their industries…

Question 47 .... of 50

- Give two ways fuel-burning power stations can cause pollution.

Answer 47 .... of 50

- The release carbon dioxide, which contributes to global warming.
- They emit sulfur dioxide which causes acid rain

Question 48 .... of 50

- Name a concern about nuclear power stations

Answer 48 .... of 50

- They create waste, which will remain radioactive for many years.
- There is a possibility of a nuclear accident which would contaminate an area.

Question 49 .... of 50

- Mary walks up some stairs. Is she doing any work?

Answer 49 .... of 50

- Yes, by lifting her weight up the stairs.

Question 50 .... of 50

- What is the unit of gravitational field strength?

Answer 50 .... of 50

- N/kg