

Paper	Topic	Q No.	Question
Phys 1	P1: Conservation and dissipation of energy	P1.1	What is useful energy?
Phys 1	P1: Conservation and dissipation of energy	P1.2	What is efficiency?
Phys 1	P1: Conservation and dissipation of energy	P1.3	What is power and what are its units?
Phys 1	P1: Conservation and dissipation of energy	P1.4	What happens to wasted energy?
Phys 1	P1: Conservation and dissipation of energy	P1.5	Which energy store is transferred during chemical reactions eg in fuels, food or batteries?
Phys 1	P1: Conservation and dissipation of energy	P1.6	Which energy store is stored by objects that have been lifted up?
Phys 1	P1: Conservation and dissipation of energy	P1.7	What does a directly proportional graph look like?
Phys 1	P1: Conservation and dissipation of energy	P1.8	What is the equation for gravitational potential energy?
Phys 1	P1: Conservation and dissipation of energy	P1.9	How do you calculate the spring constant from an extension vs force graph for a spring?
Phys 1	P1: Conservation and dissipation of energy	P1.10	What is the equation for power?
Phys 1	P1: Conservation and dissipation of energy	P1.11	What is power and what are its units?
Phys 1	P1: Conservation and dissipation of energy	P1.12	What is the equation for kinetic energy?
Phys 1	P1: Conservation and dissipation of energy	P1.13	Name the 4 energy stores
Phys 1	P1: Conservation and dissipation of energy	P1.14	What are the units of energy?
Phys 1	P1: Conservation and dissipation of energy	P1.15	What is wasted energy?
Phys 1	P1: Conservation and dissipation of energy	P1.16	What is work done by a force and what are its units?
Phys 1	P1: Conservation and dissipation of energy	P1.17	What is Hooke's Law for a spring?
Phys 1	P1: Conservation and dissipation of energy	P1.18	What is the equation for efficiency?
Phys 1	P1: Conservation and dissipation of energy	P1.19	Which energy store is stored in a springy object that has been squashed or stretched?
Phys 1	P1: Conservation and dissipation of energy	P1.20	What is the law of conservation of energy?
Phys 1	P1: Conservation and dissipation of energy	P1.21	What 3 ways can energy be transferred?
Phys 1	P1: Conservation and dissipation of energy	P1.22	Draw an energy flow diagram for a battery powered torch
Phys 1	P1: Conservation and dissipation of energy	P1.23	Which energy store is transferred by moving objects?
Phys 1	P1: Conservation and dissipation of energy	P1.24	If you know total energy supplied and useful energy output, how do you calculate the amount of energy wasted?
Phys 1	P1: Conservation and dissipation of energy	P1.25	What is the equation for work done?
Phys 1	P2: Energy transfer by heating	P2.1	Why are non-metals such good insulators?
Phys 1	P2: Energy transfer by heating	P2.2	How does loft insulation prevent heat loss in homes?
Phys 1	P2: Energy transfer by heating	P2.3	How does double glazing prevent heat loss in homes?
Phys 1	P2: Energy transfer by heating	P2.4	What causes friction?
Phys 1	P2: Energy transfer by heating	P2.5	Draw the particle arrangement of a liquid with 9 particles
Phys 1	P2: Energy transfer by heating	P2.6	Which state of matter have particles with the weakest forces of attraction between them?
Phys 1	P2: Energy transfer by heating	P2.7	Rearrange the equation $\Delta E = m c \Delta\theta$ to make c the subject
Phys 1	P2: Energy transfer by heating	P2.8	Are the particles in states of matter different sizes?
Phys 1	P2: Energy transfer by heating	P2.9	What is specific heat capacity of a material?
Phys 1	P2: Energy transfer by heating	P2.10	How does foil behind radiators prevent heat loss in homes?
Phys 1	P2: Energy transfer by heating	P2.11	What 3 factors will result in more energy loss from a building?
Phys 1	P2: Energy transfer by heating	P2.12	Which state of matter have particles which move at random but are in contact with each other?
Phys 1	P2: Energy transfer by heating	P2.13	Draw the particle arrangement of a solid with 9 particles
Phys 1	P2: Energy transfer by heating	P2.14	Which state of matter have particles with the most kinetic energy?
Phys 1	P2: Energy transfer by heating	P2.15	What do we call a measure of how good something is at conducting heat?
Phys 1	P2: Energy transfer by heating	P2.16	What energy is transferred during friction?
Phys 1	P2: Energy transfer by heating	P2.17	Give 2 ways can we reduce heat loss through a surface?
Phys 1	P2: Energy transfer by heating	P2.18	How does cavity wall insulation prevent heat loss in homes?
Phys 1	P2: Energy transfer by heating	P2.19	What is a vacuum and where is the biggest vacuum in the Universe?
Phys 1	P2: Energy transfer by heating	P2.20	If a material is very good at storing thermal energy what can we say about its specific heat capacity?
Phys 1	P2: Energy transfer by heating	P2.21	Why are metals such good conductors of heat and electricity?
Phys 1	P2: Energy transfer by heating	P2.22	If a material takes a long time to heat up or cool down what can we say about its specific heat capacity?
Phys 1	P2: Energy transfer by heating	P2.23	Draw the particle arrangement of a gas with 9 particles
Phys 1	P2: Energy transfer by heating	P2.24	What do insulators do?
Phys 1	P2: Energy transfer by heating	P2.25	What does a lubricant do?
Phys 1	P3: Energy resources	P3.1	What is biofuel made from?
Phys 1	P3: Energy resources	P3.2	Do nuclear power stations have a fast or slow start-up time?
Phys 1	P3: Energy resources	P3.3	Do nuclear power stations have a high or low energy yield?
Phys 1	P3: Energy resources	P3.4	Name a reliable, renewable fuel that can be burned in fossil fuel power stations?
Phys 1	P3: Energy resources	P3.5	What do we call substances we burn to release heat energy?
Phys 1	P3: Energy resources	P3.6	What does the term 'non-renewable energy source' mean?
Phys 1	P3: Energy resources	P3.7	Are hydroelectric power stations quick to start-up?
Phys 1	P3: Energy resources	P3.8	Are fossil fuels renewable or non-renewable energy sources?
Phys 1	P3: Energy resources	P3.9	Is hydroelectric power considered reliable?
Phys 1	P3: Energy resources	P3.10	How does a hydroelectric power station work?
Phys 1	P3: Energy resources	P3.11	Are wind and wave power reliable energy sources?
Phys 1	P3: Energy resources	P3.12	What are fossil fuels made from?
Phys 1	P3: Energy resources	P3.13	Which energy store is transferred during chemical reactions eg in fuels, food or batteries?
Phys 1	P3: Energy resources	P3.14	What does the term 'renewable energy source' mean?
Phys 1	P3: Energy resources	P3.15	How can biofuels be considered carbon neutral?
Phys 1	P3: Energy resources	P3.16	What 2 renewable energy sources rely upon kinetic energy from wind or waves?
Phys 1	P3: Energy resources	P3.17	What renewable energy resource relies upon heat energy from radioactive rocks underground?
Phys 1	P3: Energy resources	P3.18	What is the problem with the fuel and waste from nuclear power stations?
Phys 1	P3: Energy resources	P3.19	Which greenhouse gas is released from burning fossil fuels?
Phys 1	P3: Energy resources	P3.20	What are the two radioactive fuels used in nuclear power stations?
Phys 1	P3: Energy resources	P3.21	Name 5 renewable energy sources?
Phys 1	P3: Energy resources	P3.22	What renewable energy resource relies upon energy from the sun?
Phys 1	P3: Energy resources	P3.23	Name the 3 fossil fuels?
Phys 1	P3: Energy resources	P3.24	Which energy resource is very expensive to set up and decommission?
Phys 1	P3: Energy resources	P3.25	What does decommissioning mean?
Phys 1	P4: Electric circuits	P4.1	Draw the circuit symbol for a variable resistor and say what it does
Phys 1	P4: Electric circuits	P4.2	What is resistance and what units is it measured in?
Phys 1	P4: Electric circuits	P4.3	Sketch a simple parallel circuit, with a battery, bulb, resistor and ammeter. Add a voltmeter to find potential difference of bulb
Phys 1	P4: Electric circuits	P4.4	Draw the circuit symbol for a thermistor and say what it does
Phys 1	P4: Electric circuits	P4.5	Draw the circuit symbol for a diode and say what it does
Phys 1	P4: Electric circuits	P4.6	Sketch the current vs potential graph for a resistor
Phys 1	P4: Electric circuits	P4.7	What is the equation relating charge, current and time?

Phys 1	P4: Electric circuits	P4.8	Draw the circuit symbol for a fuse and say what it does
Phys 1	P4: Electric circuits	P4.9	What is current and what units is it measured in?
Phys 1	P4: Electric circuits	P4.10	In a series circuit, how many routes does current have?
Phys 1	P4: Electric circuits	P4.11	Draw the circuit symbol for a LDR and say what it does
Phys 1	P4: Electric circuits	P4.12	Draw the circuit symbol for an voltmeter and say what it does
Phys 1	P4: Electric circuits	P4.13	Draw the circuit symbol for an ammeter and say what it does
Phys 1	P4: Electric circuits	P4.14	Draw the circuit symbol for a resistor and say what it does
Phys 1	P4: Electric circuits	P4.15	In a parallel circuit, what happens to the current and potential difference around it?
Phys 1	P4: Electric circuits	P4.16	How do you combine resistances in a series circuit?
Phys 1	P4: Electric circuits	P4.17	Sketch the resistance vs light intensity graph for a LDR
Phys 1	P4: Electric circuits	P4.18	Sketch a simple series circuit, with a battery, bulb, resistor and ammeter. Add a voltmeter to find potential difference of bulb
Phys 1	P4: Electric circuits	P4.19	Draw the circuit symbol for a LED and say what it does
Phys 1	P4: Electric circuits	P4.20	What is the equation relating potential difference, current and resistance?
Phys 1	P4: Electric circuits	P4.21	In a series circuit, what happens to the current and potential difference around it?
Phys 1	P4: Electric circuits	P4.22	What is potential difference and what units is it measured in?
Phys 1	P4: Electric circuits	P4.23	Sketch the current vs potential difference graph for a diode
Phys 1	P4: Electric circuits	P4.24	What is the symbol and unit for charge?
Phys 1	P4: Electric circuits	P4.25	Sketch the resistance vs temperature graph for a thermistor
Phys 1	P5: Electricity in the home	P5.1	What is the equation relating work done, charge and potential difference?
Phys 1	P5: Electricity in the home	P5.2	Why do we use step-down transformers?
Phys 1	P5: Electricity in the home	P5.3	In what position in a plug does the live wire connect?
Phys 1	P5: Electricity in the home	P5.4	What is the equation relating power, current and resistance?
Phys 1	P5: Electricity in the home	P5.5	What does dc stand for and where is it found?
Phys 1	P5: Electricity in the home	P5.6	What is power and what are its units?
Phys 1	P5: Electricity in the home	P5.7	Which wire in a plug carries current safely to Earth if there is a fault?
Phys 1	P5: Electricity in the home	P5.8	What is potential difference and what units is it measured in?
Phys 1	P5: Electricity in the home	P5.9	Which wire in a plug is blue and has a potential difference of around 0V?
Phys 1	P5: Electricity in the home	P5.10	What colour is the live wire in an electrical cable?
Phys 1	P5: Electricity in the home	P5.11	What is resistance and what units is it measured in?
Phys 1	P5: Electricity in the home	P5.12	Sketch a graph of potential difference versus time for a dc supply
Phys 1	P5: Electricity in the home	P5.13	What does ac stand for and where is it found?
Phys 1	P5: Electricity in the home	P5.14	What is the potential difference and frequency of UK mains electric
Phys 1	P5: Electricity in the home	P5.15	What is the equation relating potential difference, current and resistance?
Phys 1	P5: Electricity in the home	P5.16	What is current and what units is it measured in?
Phys 1	P5: Electricity in the home	P5.17	Which wire in a plug connects to the fuse and has a potential difference of about 230V?
Phys 1	P5: Electricity in the home	P5.18	What do step-down transformers do
Phys 1	P5: Electricity in the home	P5.19	What is work done by a current and what are its units?
Phys 1	P5: Electricity in the home	P5.20	What do step-up transformers do
Phys 1	P5: Electricity in the home	P5.21	What is the equation relating work done, power and time?
Phys 1	P5: Electricity in the home	P5.22	Why do we use step-up transformers?
Phys 1	P5: Electricity in the home	P5.23	Sketch a graph of potential difference versus time for an ac supply
Phys 1	P5: Electricity in the home	P5.24	What colour is the Earth wire in an electrical cable?
Phys 1	P5: Electricity in the home	P5.25	What is the national grid?
Phys 1	P6: Molecules and matter	P6.1	Which state of matter have particles with the most kinetic energy?
Phys 1	P6: Molecules and matter	P6.2	Sketch and label a heating curve
Phys 1	P6: Molecules and matter	P6.3	On a heating curve what slope is the line when the solid is melting?
Phys 1	P6: Molecules and matter	P6.4	What do we call the temperature at which a solid turns into a liquid?
Phys 1	P6: Molecules and matter	P6.5	What is volume and what units is it measured in?
Phys 1	P6: Molecules and matter	P6.6	Why do some objects float in air?
Phys 1	P6: Molecules and matter	P6.7	At what temperatures does evaporation happen?
Phys 1	P6: Molecules and matter	P6.8	Why do some objects sink in water?
Phys 1	P6: Molecules and matter	P6.9	What do we call the energy needed to boil 1kg of liquid into gas?
Phys 1	P6: Molecules and matter	P6.10	At state changes, what happens to temperature and kinetic energy of particles?
Phys 1	P6: Molecules and matter	P6.11	What do we call the temperature at which a gas turns into a liquid?
Phys 1	P6: Molecules and matter	P6.12	What is density and what units is it measured in?
Phys 1	P6: Molecules and matter	P6.13	What is mass and what units is it measured in?
Phys 1	P6: Molecules and matter	P6.14	What is the equation for density?
Phys 1	P6: Molecules and matter	P6.15	Which state of matter have particles with the weakest forces of attraction between them?
Phys 1	P6: Molecules and matter	P6.16	What do we call the temperature at which a liquid turns into a solid?
Phys 1	P6: Molecules and matter	P6.17	What is latent heat?
Phys 1	P6: Molecules and matter	P6.18	Sketch and label a cooling curve
Phys 1	P6: Molecules and matter	P6.19	Draw the particle arrangement of a liquid with 9 particles
Phys 1	P6: Molecules and matter	P6.20	What happens to gas pressure as temperature increases?
Phys 1	P6: Molecules and matter	P6.21	Which state of matter have particles which move at random but are in contact with each other?
Phys 1	P6: Molecules and matter	P6.22	What causes gas pressure?
Phys 1	P6: Molecules and matter	P6.23	How do you find the volume of an irregular shaped object?
Phys 1	P6: Molecules and matter	P6.24	At state changes, what happens to internal energy and potential energy of particles?
Phys 1	P6: Molecules and matter	P6.25	What do we call the temperature at which a liquid turns into a gas?
Phys 1	P7: Radioactivity	P7.1	What is the nuclear model of the atom?
Phys 1	P7: Radioactivity	P7.2	What is an isotope?
Phys 1	P7: Radioactivity	P7.3	What do we call something that has been exposed to radiation but is not radioactive?
Phys 1	P7: Radioactivity	P7.4	What mass and charge has a beta particle got?
Phys 1	P7: Radioactivity	P7.5	What do we call something you cannot predict or change?
Phys 1	P7: Radioactivity	P7.6	What range has an alpha particle got and what will stop it?
Phys 1	P7: Radioactivity	P7.7	What is radioactive activity and what are its units?
Phys 1	P7: Radioactivity	P7.8	What charge has an alpha particle got?
Phys 1	P7: Radioactivity	P7.9	What mass and charge has a gamma ray got?
Phys 1	P7: Radioactivity	P7.10	What detector do we use to measure radiation?
Phys 1	P7: Radioactivity	P7.11	What range has a gamma ray got and what will stop it?
Phys 1	P7: Radioactivity	P7.12	What is an alpha particle made of?
Phys 1	P7: Radioactivity	P7.13	What is radioactive decay?
Phys 1	P7: Radioactivity	P7.14	What is the approximate radius of an atom?
Phys 1	P7: Radioactivity	P7.15	What range has a beta particle got and what will stop it?
Phys 1	P7: Radioactivity	P7.16	What is a gamma ray?
Phys 1	P7: Radioactivity	P7.17	A Sodium atom has the chemical symbol $^{23}_{11}\text{Na}$ . How many neutrons has it got?
Phys 1	P7: Radioactivity	P7.18	Draw a label the plum pudding model of the atom
Phys 1	P7: Radioactivity	P7.19	What happens to the parent atomic mass and atomic number when it emits an alpha particle?

Phys 1	P7: Radioactivity	P7.20	What is the half life of a radioisotope?
Phys 1	P7: Radioactivity	P7.21	What is a beta particle made of?
Phys 1	P7: Radioactivity	P7.22	Sketch a radioactive decay graph and show how you would use it to find half-life
Phys 1	P7: Radioactivity	P7.23	Who discovered neutrons?
Phys 1	P7: Radioactivity	P7.24	A Fluorine atom has the chemical symbol ${}^{19}_9\text{F}$ . How many protons has it got?
Phys 1	P7: Radioactivity	P7.25	What happens to the parent atomic mass and atomic number when it emits a beta particle?