Physics paper one (foundation tier)

Knowledge organiser: no answers

Test yourself by answering the knowledge questions from one topic on paper.

Self-assess using the knowledge organiser on the student portal

	Paper:	**P1**
	Topic:	**Energy Types (P.1)**
1	What type of energy do all moving objects have?	
2	The law of conservation of energy states what three things that can happen to energy	
3	Which word means 'wasted into the surroundings'?	
4	When energy is wasted, it is usually which energy types?	
5	The law of conservation of energy states that which two things cannot happen to energy?	
6	What can be done to moving parts in a system to reduce heat loss by friction?	
7	What name is given to a material which does not conduct thermal energy well?	
8	What name is given to a material which allows thermal energy to pass through it easily?	
9	What is the unit for energy?	
10	What type of heat transfer travels through solids?	
11	What type of heat transfer happens only in fluids (gas and liquids)?	
12	Which is the only type of thermal energy transfer can occur in a vacuum?	
13	Which dissipates less thermal energy? Thin walls or thick walls?	
14	Which dissipates less thermal energy? Walls with large or small area	
15	Which dissipates less thermal energy? Large or small temperature difference	
	Topic:	**Work power and efficiency (P.2)**
1	Equation for work done.	
2	Units for work done.	
3	What is work done?	
4	Units for power.	
5	Equation for power.	
6	Units for time.	
7	Define power.	
8	One watt is the same as…	
9	Equation for efficiency in terms of energy	
10	Equation for efficiency in terms of power	
11	Units for efficiency	
12	Units for force	
13	One Joule is the same as…	
14	The minimum value of efficiency	
15	The maximum value of efficiency	
	Topic:	**Elastic objects and potential Energy (P.3)**
1	What is the equation for elastic potential energy?	
2	What is the equation for kinetic energy?	
3	What is the equation for gravitational potential energy?	
4	Which equation describes Hooke's Law?	
5	What type of energy is stored in a stretched elastic band?	
6	What type of energy is stored in a squashed up tennis ball?	
7	What needs to be applied for an object to change shape?	

8	Define the term for an object returning to its original shape after being stretched	
9	Define the term for an object not returning to its original shape after being stretched	
10	Identify the Law: "The extension of a spring is directly proportional to the force applied to it."	
11	What sort of energy is stored in a bungee cord?	
12	What do you call the point at which Hooke's Law no longer applies?	
13	In a graph of Hooke's Law, what happens at the limit of proportionality?	
14	What is the equation for "gravitational potential energy"?	
15	What is the equation for Kinetic Energy?	
	Topic:	**Nuclear physics (P.21)**
1	What is the size of the atom?	
2	Which two sub atomic particles are found in the nucleus?	
3	What is the radius of nucleus compared to radius of atom?	
6	Are atoms positive, negative or neutral?	
7	What is the atomic number?	
8	What is the mass number?	
9	What is an "ion"?	
10	What are isotopes?	
11	Describe the plum pudding model	
12	What is the name of the current model of the atom?	
13	State two conclusions from the alpha scattering experiment	
14	State the conclusion provided by Niels Bohr	
15	State the conclusion provided by James Chadwick	
	Topic:	**Radioactive decay and radiation (P.22)**
1	What two words can we use to describe the process of radioactive decay?	
2	What is the word to describe the rate at which a source of unstable nuclei decays	
3	What is the word to describe the number of decays recorded each second by a detector	
4	What is the equipment for measuring radiation?	
5	Name the four types of nuclear radiation	
6	Describe the structure of an alpha particle	
7	What is a beta particle?	
8	What is a gamma ray?	
9	Three main types of radiation in order of high to low ionising power.	
10	Three main types of radiation in order of high to low penetrating power.	
11	Which materials are able to stop each type of radiation?	
12	Distances alpha, beta and gamma can go in air.	
13	Define "irradiation"	
14	Define "half-life"	
15	Define "radioactive contamination"	
	Topic:	**Density (P.25)**
1	State the equation for density	
2	State the units for density	
3	State the units for volume	
4	How do you calculate the volume of a cube?	
5	How do you calculate the volume of a cuboid?	
6	State two drawbacks of the particle model	
7	Describe the particle model of solids	
8	Describe the particle model of liquids	
9	Describe the particle model of gases	
10	Name the five changes of state	
11	Describe the state change in sublimation	

12	How do the particles move in a solid?	
13	How do you calculate the density of an irregular shape?	
14	How do you calculate the density of a regular shape?	
15	How do the particles move in a gas?	
	Topic:	**Changes of state, latent heat and specific heat capacity (P.26)**
1	Define 'conservation of mass'	
2	Why does temperature not change during a state change?	
3	Define "internal energy"	
4	How do we calculate internal energy?	
5	How does heating affect the internal energy of a system?	
6	State the equation for change in thermal energy	
7	State the units for specific heat capacity	
8	Define "specific heat capacity"	
9	Define "latent heat"	
10	Define "specific latent heat of vaporisation"	
11	Define "specific latent heat of fusion"	
12	Equation for specific latent heat.	
13	State the units for specific latent heat	
14	Describe the key property of a substance with a high specific heat capacity	
15	What does a flat section on a heating and cooling graph represent?	
	Topic:	**Gas and fluid pressure (paper 1) (P.27)**
1	Describe the motion of particles in a gas.	
2	How do we determine the temperature of a gas?	
3	State two factors that will influence gas pressure	
4	If a gas is held at a constant volume, describe the relationship between temperature and pressure	
5	Why does increasing temperature increase the pressure of a gas (if held at a constant volume)?	
	Topic:	**Electricity introduction (P.29)**
1	What does LED stand for?	
2	What does LDR stand for?	
3	State the equation for charge flow	
4	State the units for charge flow	
5	Define 'electrical current'	
6	What do the symbols I, t and Q represent?	
7	State the units for resistance	
8	How does resistance affect current?	
9	What is an ohmic conductor?	
10	What is a non-ohmic conductor?	
11	Write Ohm's law as an equation	
12	Units for potential difference.	
13	State the units for current.	
14	Which piece of equipment is used to measure current in a circuit?	
15	Which piece of equipment is used to measure voltage in a circuit?	
	Topic:	**Series and parallel circuits (P.30)**
1	Do series circuits have one loop or multiple loops?	
2	Do parallel circuits have one loop or multiple loops?	
3	Describe the distribution of current in a series circuit	
4	Describe the distribution of potential difference in a series circuit	
5	Describe the distribution of current in a parallel circuit	
6	Describe the distribution of potential difference in a parallel circuit	
7	Name the component used to measure current	
8	Name the component used to measure voltage	

9	Are voltmeters connected in series or parallel?	
10	Are ammeters connected in series or parallel?	
11	State the equation for calculating resistance in a series circuit	
12	How do you calculate total resistance in a series circuit?	
13	What affect does adding resistors have in a series circuit on the resistance?	
14	What affect does adding resistors have in a parallel circuit on the resistance?	
15	Equation for resistance in a parallel circuit:	
	Topic:	**Ohmic/non-ohmic types of resistors (P.31)**
1	In ohmic components, which two variables are directly proportional?	
2	If current and potential difference are directly proportional, what does this tell us about the resistance?	
3	Sketch an IV graph for an ohmic conductor	
4	Sketch a graph an IV for a filament bulb.	
5	Sketch a graph an IV graph for a diode.	
6	Name 4 non-ohmic conductors	
7	Why are filament light bulbs non-ohmic?	
8	Describe the relationship between current and potential difference for a diode.	
9	Describe the relationship between temperature and resistance in a thermistor.	
10	State one use of a thermistor	
11	Describe the relationship between light intensity and resistance in an LDR	
12	State a use of an LDR	
13	Draw the symbol of a resistor.	
14	Symbol of a variable resistor.	
15	Symbol of LDR	
	Topic:	**Mains electricity (P.32)**
1	Is mains electricity AC or DC?	
2	What do AC and DC mean?	
3	State the frequency of UK mains supply	
4	State the potential difference of UK mains supply	
5	What are the names of the three wires in a three core cable	
6	State the colour of a)earth wire, b)live wire, c) neutral wire	
7	State the function of the live wire.	
8	State the function of the neutral wire.	
9	Function of the earth wire.	
10	State the potential difference between the live wire and earth wire.	
11	State the potential difference of the neutral wire.	
12	State the potential difference of the earth wire.	
13	State the equation for electrical power (that uses potential difference)	
14	State two things that affect the amount of energy an appliance transfers	
15	State the equation we use to calculate the energy transferred by a device that uses charge flow	
	Topic:	**Energy and power of electricity and the National Grid (P.33)**
1	State the equation that links current, potential difference and power	
2	State the equation that links current, power and resistance	
3	State the two most commonly wasted forms of energy	
4	When energy is wasted, what happens to it?	
5	State the equation that links time, energy and power	

6	State the equation that links energy, potential difference and charge flow	
7	What is the national grid composed of?	
8	What is the national grid used for?	
9	State the effect of step up transformers on potential difference	
10	State the effect of step down transformers on potential difference	
11	State the effect of step up transformers on current.	
12	State the effect of step down transformers on current.	
13	Why are step up transformers used?	
14	Why are step down transformers used?	
15	Why is the national grid efficient?	