

Question	Answers	Extra information	Mark
1(a)	joule watt 1000 1000		1 1 1 1
(b)	created destroyed transferred	Either order for created and destroyed	1 1 1
2(a)	coal oil		1 1
(b)	hydroelectricity – water falling through turbines biofuels – wood and other fuels that can be grown geothermal – water pumped underground to produce steam from hot rocks tidal – movement of water through turbines twice a day	2 marks for two correctly matched 1 mark for one correctly matched	3
(c)	wave (power)		1
3(a)	forces an electric current heating by particles heating by radiation		1 1 1 1
(b)	transfer of energy to a store that is not useful/needed/transfer of energy that is not needed/useful		1
(c)	lubrication		1
4(a)	work = 20 N × 4 m		1
(b)	friction		1

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(c)	10 20 W		1 1 1
5(a)	radiation is given out by all objects solids are good conductors		1 1
(b)	different the same equilibrium		1 1 1
(c)	in a hot liquid, the particles are moving fast in a cold liquid, the particles are moving slowly		1 1
6(a)	chemical chemical store thermal store particles		1 1 1 1
(b)i	boiler		1
(b)ii	generator		1
(b)iii	turbine		1
(c)	climate change/rising sea levels/more extreme weather burning fossil fuels produces carbon dioxide		1 1
7(a)	colour of can		1
(b)	time to cool to 50 °C		1
(c)	volume of water in can/volume of can		1
(d)	take care that the boiling water does not burn you	Accept words to this effect	1
8(a)	20 g × 11 000 J/gram + 20 g × 15 000 J/gram		1 1

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(b)	number of minutes = $\frac{520\,000\text{ J}}{20\,000\text{ J}} \text{ min}$ = 26 minutes		1 1
(c)	longer less energy is transferred per minute		1 1
9(a)	kettle A – 700 W 0.7 kW kettle B – 1000 W 1 kW		1 1 1 1
(b)	kettle B transfers more energy per second		1
(c)	number of kWh = 1 kW × 0.01 h = 0.01 kWh cost = 0.01 kWh × 10p = 0.1p		1 1 1
SPACED LEARNING QUESTIONS			
10(a)	B		1
(b)	A, add a wire from the bulb to the battery/connect the bulb to the battery C, turn one of the batteries/cells around	Letter and explanation needed for the mark	1 1
(c)	decreases increases		1 1
11(a)	arrows showing reaction force up, weight down, with arrows the same length arrows labelled weight/force of Earth on cyclist, and reaction/force of saddle/ground/bike on cyclist	1 mark for each arrow correctly drawn and labelled	2
(b)	force of Earth on cyclist/cyclist on Earth force of seat on cyclist/cyclist on seat		1 1

KS3 Physics

Answers

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(c)	balanced the speed is not changing		1 1