

Question Number	Answer	Acceptable answers	Mark
1(a)	A		(1)

Question Number	Answer	Acceptable answers	Mark
1(b)(i)	both points correctly plotted (1)	allow +/- half square	(1)

Question Number	Answer	Acceptable answers	Mark
1(b)(ii)	smooth curve (1) (does not need to go through all points i.e. can miss out top section)	allow slight discontinuities/double lines/ thick lines NOT dot to dot /two straight lines	(1)

Question Number	Answer	Acceptable answers	Mark
1(b)(iii)	temperature from 34 °C to 39 °C inclusive (1)		(1)

Question Number	Answer	Acceptable answers	Mark
1(b)(iv)	21(°C) (1)	22(°C) /23(°C)	(1)

Question Number	Answer	Acceptable answers	Mark
1(c)(i)	it/black is a good absorber of heat /energy/radiation/IR (1) i.e. it absorbs/takes in more infrared/IR	allow it/black absorbs/takes in heat ignore attracts/emitter/conductor NOT (so it) cools down quickly	(1)

Question Number	Answer	Acceptable answers	Mark
1(c)(ii)	substitution (1) $9000 \div 20$ evaluation (1) 450 (W)	ignore powers of 10 until evaluation e.g. $90 \div 2$ gains 1 mark 45 gains 1 mark give full marks for correct answer, no working	(2)

Question Number	Answer	Acceptable answers	Mark
1(c)(iii)	substitution (1) $9000 \div 18\ 000 (\times 100\%)$ evaluation (1) 50 (%)	ignore powers of 10 until evaluation e.g. $90\ 000 \div 1800$ gains 1 mark 5 gains 1 mark 0.5 or $\frac{1}{2}$ or half gains both marks give full marks for correct answer, no working	(2)

Question Number	Answer	Acceptable answers	Mark
2(a)	A		(1)

Question Number	Answer	Acceptable answers	Mark
2(b)(i)	6%	100 - 94	(1)
(ii)	comparing reflected amount for water with any one of the others (1)	saying one {named material (on the graph) is/all materials (on the graph) are} solid	(1)

Question Number	Answer	Acceptable answers	Mark
2(c)(i)	An explanation to include the following <ul style="list-style-type: none"> • more thermal (heat) energy is absorbed (1) • because water (liquid) absorbs more than ice (solid) (1) 	<p>more radiation is absorbed</p> <p>because water (liquid) reflects less than ice (solid)</p> <p>because less ice surface to reflect</p> <p>because more water surface to absorb</p>	(2)

Question Number	Answer	Acceptable answers	Mark
2(c)(ii)	its temperature rises	<p>gets hotter</p> <p>water level increases/gets higher</p> <p>Ignore '{water/it} {increases/rises}'</p> <p>Reject toxicity</p>	(1)

Question Number		Indicative content	Mark
QWC	*2(d)	<p>A description including some of the following</p> <ul style="list-style-type: none"> • solar / heat / light • photosynthesis • chemical / fossil fuel • burning • thermal • in steam • kinetic • in turbine • electrical • in generator 	(6)
Level	0	no rewardable material	
1	1-2	<ul style="list-style-type: none"> • a limited description which identifies an energy in an appropriate place e.g. thermal energy in the boiler OR e.g. the (same) energy flows from the boiler to the turbine • the answer communicates ideas using simple language and uses limited scientific terminology • spelling, punctuation and grammar are used with limited accuracy 	
2	3-4	<ul style="list-style-type: none"> • a simple description which includes details of a relevant energy transfer e.g. (steam causing) the turbine to rotate turns the coil in the generator transferring kinetic energy into electrical energy • the answer communicates ideas showing some evidence of clarity and organisation and uses scientific terminology appropriately • spelling, punctuation and grammar are used with some accuracy 	
3	5 - 6	<ul style="list-style-type: none"> • a detailed description to includes details of a sequence of transfers e.g. chemical energy stored in the coal is transferred in the boiler to thermal energy producing steam. The steam turns the turbine which turns the coil. • the answer communicates ideas clearly and coherently uses a range of scientific terminology accurately • spelling, punctuation and grammar are used with few errors 	