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 ÷ 20 evaluation (1) 450 (W)	ignore powers of 10 until evaluation e.g. 90 ÷ 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 ÷ 18 000 (x 100%) evaluation (1) 50 (%)	ignore powers of 10 until evaluation e.g. 90 000 ÷ 1800 gains 1 mark 5 gains 1 mark 0.5 or ½ 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 • more thermal (heat) energy is absorbed (1) • because water (liquid) absorbs more than ice (solid) (1)	more radiation is absorbed because water (liquid) reflects less than ice (solid) because less ice surface to reflect because more water surface to absorb	**(2)**

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

Question Number		Indicative content	Mark
QWC	***2(d)**	A description including some of the following • 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**	• 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**	• 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**	• 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	