Name of the Student:_____
Max. Marks : 20 Marks **Time : 20 Minutes**

Mark Schemes

Q1.

Question number	Answer	Additional guidance	Mark
	A description including idea of change of state / solid **changes** (1) to gas / vapour (directly) (1)	 accept equivalents e.g. turns into / goes from to allow reverse i.e. gas → solid may be via appropriate example e.g. ice → water vapour / steam or reverse (2 marks)	**(2)** **AO1.1**

Q2.

Question number	Answer	Additional guidance	Mark
	an explanation linking any **three** from: stir the water before taking a reading of temperature (1) (continue to) observe temperature**s** after switching off (1) record the maximum / highest / peak temperature reached (1) take temperature reading at eye level (1) conduction (and convection) take time (1)	allow "for **longer** than 10 minutes" allow wait(ing period) in correct context until the temperature stops changing takes time (for water / thermometer) to heat through	**(3)** **AO1.2**

Q3.

	Answer	Additional guidance	Mark
	an explanation linking: density of solid is greater (than density of liquid) (1) (because) distance between particles in solid is less (than distance between particles in liquid) (1)	solids are dens**er** accept in solids, particles are clos**er** accept in solids, there are **more** particles per unit volume / particles are **more** (tightly) packed	**(2)** **AO1.1**

Q4.

SSQ NO:	CS NO:	Answer	Mark
*		Answers will be credited according to candidate's deployment of knowledge and understanding of the material in relation to the qualities and skills outlined in the generic mark scheme. The indicative content below is not prescriptive and candidates are not required to include all the material which is indicated as relevant. Additional content included in the response must be scientific and relevant. **AO1 strand 1 (6 marks)** • particles move faster (at a higher temperature) • greater velocity / speed means greater kinetic energy • since KE = ½ m v^2 • heating increases KE (store) • KE (store) increase leads to higher (average) speeds • faster particles (at higher temperature so) hit container with more force / momentum exchange • bigger pressure because p = F / A • particles hit container more frequently (at higher temperature) • so **more** force exerted on (walls of) container	**(6)** **AO1.1**

Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1-2	• Demonstrates elements of physics understanding, some of which is inaccurate. Understanding of scientific ideas lacks detail. (AO1) • Presents an explanation with some structure and coherence. (AO1)
Level 2	3-4	• Demonstrates physics understanding, which is mostly relevant but may include some inaccuracies. Understanding of scientific ideas is not fully detailed and/or developed. (AO1) • Presents an explanation that has a structure which is mostly clear, coherent and logical. (AO1)
Level 3	5-6	• Demonstrates accurate and relevant physics understanding throughout. Understanding of the scientific ideas is detailed and fully developed. (AO1) • Presents an explanation that has a well-developed structure which is clear, coherent and logical. (AO1)

Summary for guidance

Level	Mark	Additional Guidance	General additional guidance – the decision within levels Eg - At each level, as well as content, the scientific coherency of what is stated will help place the answer at the top, or the bottom, of that level.
	0	No rewardable material.	
Level 1	1–2	Additional guidance isolated idea(s) of physics e.g. recognising the speed-temperature relationship or the pressure temperature relationship	Possible candidate responses particles faster (at higher temperature) KE increases pressure increases (at a higher temperature)
Level 2	3–4	Additional guidance limited details about KE **or** limited details about pressure **or** linked ideas about kinetic energy and pressure	Possible candidate responses faster particles have greater kinetic energy (store) (particles) hitting container more often causes greater pressure faster particles cause greater force bigger pressure because force increased
Level 3	5–6	Additional guidance understanding is detailed and fully developed. includes detail about **both** kinetic energy **and** force involvement in pressure, but one aspect may be covered in greater detail than the other one	Possible candidate responses greater speed means greater kinetic energy since KE = ½ m v^2 **AND** bigger pressure because more frequent collisions causes an increase in force greater speed means greater kinetic energy **AND** bigger pressure because p = F / A and (total) force increased because of hitting container walls with bigger momentum (changes)

Q5.

Question number	Answer	Additional guidance	Mark
	an explanation linking specific heat capacity concerns change in temperature (1) whereas specific latent heat concerns change of state (1)	 accept specific heat capacity concerns heating <u>up</u> / cooling accept any named change of state e.g. melting / freezing / evaporating /boiling accept specific latent heat related to no change in temperature	**(2)** **AO1.1**

Q6.

Question number	Answer	Additional guidance	Mark
	an explanation linking density of wood less (than that of water) (1) less (volume of) water displaced (than volume of wood) (1)	 allow wood floats / should be submerged allow wood absorbing water allow (idea of) incorrect volume reading allow (idea that) the volume cannot be measured this way	**(2)** **AO2.2**

Q7.

Question Number	Answer	Mark
	The only correct answer is **C** from solid to gas ***A** is 'condensation'* ***B** is 'freezing'* ***D** is 'melting'*	**(1)** **AO1.1**

Q8.

Question Number	Answer	Mark
	The only correct answer is C the mean distance between the particles inside the can ***A, B and D have physical quantities which will all increase upon heating***	**(1)** **AO3.1**

Q9.

Question number	Answer	Mark
	☒ D sublimating A is incorrect because it describes a change of state from gas to liquid. B is incorrect because it describes a change of state from liquid to solid C is incorrect because it describes a change of state from solid to liquid	**(1)** **AO1**