Practice Question Set For GCSE
Subject : Physics
Paper-2 Topic : 14_Particle Model

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Name of the Student:_____
Max. Marks : 18 Marks **Time : 18 Minutes**

Mark Schemes

Q1.

Question number	Answer	Additional guidance	Mark
	substitution (1) 100 ÷ 13 answer (1) 7.7 (g/cm^3)	award full marks for correct numerical answer without working allow 7.692 (g/cm^3)	(2)

Q2.

Question number	Answer	Additional guidance	Mark
(i)	933 (K)	do not accept -933	(1) AO2

Question number	Answer	Additional guidance	Mark
(ii)	A description to include any **two** from:		**(2)** **AO1**
	(motion is) random (1)	move freely / move in any direction / move around	
	various {speeds / velocities / kinetic energies} (1)	different speeds range of speeds	
	bump into each other / collide (1)	slide over / past each other / touch each other / in contact with each other	
	fast(er than solid) (1)	more kinetic energy (than in solid) ignore bulk properties of liquids e.g. take shape of container. ignore vibrate "random speeds" on its own scores 1 mark	

Q3.

Question number	Answer	Additional guidance	Mark
	rearrangement (1) $(l =) \frac{\Delta Q}{\Delta m}$ substitution (1) $l = \frac{270000}{0.12}$ answer (1) 2 250 000 (J/kg °C)	award full marks for correct numerical answer without working 2250 (J/kg °C) gains 2 marks as power of 10 error	**(3)**

Q4.

Question	Answer	Additional guidance	Mark
	substitution into $Q = m \times L$ (1) $(Q =)$ 60 $(\times 10^{-3}) \times$ 2.26 $(\times 10^{6})$ evaluation (1) 1.36×10^{5} (J)	 136 000 (J) 135 600 (J) accept numbers that round to 1.4×10^{5} (J) award full marks for the correct answer without working any answer rounding to 1.4 to any other power of 10 scores 1 mark	**(2)** **AO2.1**

Q5.

Question number	Answer	Additional guidance	Mark
(i)	an explanation linking any three of the following : use a measuring cylinder /beaker or use a eureka can /displacement can/container with spout (1) (partly) fill measuring cylinder /beaker (with water) note the reading or fill (eureka) can to spout (1) immerse piece of copper (in water) (1) note difference in readings of water level (in measuring cylinder /beaker) or collect water from spout in a measuring cylinder /beaker (1)	give credit for other acceptable methods If no other marks scored then allow 1 mark for attempt to measure volume directly: e.g. fill copper tube with water, tip out and measure volume or measure dimension(s) of copper tube	(3)

Question number	Answer	Additional guidance	Mark
(ii)	recall and substitution (1) density= $\frac{m}{V}$ (density=) $\frac{0.058}{6.5 (\times 10^{-6})}$ evaluation (1) 8.9×10^3 (kg/m³)	 accept values that round to 8900 e.g. 8923(kg/m³) or 9000 8.9 to any other power of ten gains 1 mark award full marks for correct answer without working.	(2)

Q6.

Question number	Answer	Additional guidance	Mark
	substitution (1) $(r) = \frac{7.22(\times 10^{-2})}{2.69(\times 10^{-5})}$ evaluation (1) (ρ =) 2680	 2.68 to any power of ten seen allow any value that rounds to 2680; e.g. 2684 accept 2700 allow values in standard form e.g. 2.68×10^3	(3) AO2

	unit (1) kg / m^3	kg m^{-3} allow for three marks: 2.68 to any power of ten **with** a consistent unit, e.g. 2680 kg/m^3 2680 g/dm^3 2.68 g/cm^3 2.68 kg/dm^3 0.00268 kg/cm^3 2 680 000 g/m^3 allow for two marks: • 2680 with no or incorrect unit • 2.68 to any other power of 10 **with** an inconsistent unit of density • correct substitution **with** an inconsistent unit of density allow for one mark: • 2680 to any other power of ten with no or incorrect unit • appropriate unit of density with no or an incorrect value	