14. Temperature

14.2 Temperature scales

Paper 4

Marking Scheme

Q1.

(a)(i)	0 K	**B1**
(a)(ii)	(measurement) depends on properties of the liquid	**B1**
(b)(i)	• resistivity varies with temperature • variation with temperature is linear • unique value of resistivity for each (different value of) temperature *Any two points, 1 mark each*	**B2**
(b)(ii)	thermometer has high heat capacity/specific heat capacity **or** energy transfer needed for thermometer to reach correct temperature **or** thermometer takes time to reach the correct temperature	**B1**
(b)(iii)	thermocouple	**B1**
(c)	(variation is) inverse **or** (variation is) non-linear	**B1**

Q2.

(b)(i)	variation (of density with temperature) is linear **or** each temperature has a unique value of density	**B1**
(b)(ii)	• variation (of density with temperature) is not linear • region where the density does not vary with temperature • different temperatures have the same density *Any two points, 1 mark each*	**B2**

Q3.

(a)(ii)	temperature = –273.15 °C	**A1**

Q4.

(a)	• resistance of a metal • volume of a gas at constant pressure • e.m.f. of a thermocouple *Any two points, 1 mark each*	**B2**
(c)(i)	depends on properties of a real substance	**B1**
	0 °C is not absolute zero	**B1**
(c)(ii)	ideal gas	**B1**