Question number		Answer	Notes	Marks
3 (a)		idea that like poles repel;		1
(b)		it is made of plastic / idea that plastic is non-magnetic;		1
(c)		correct shape e.g. lines deviating away from both magnets; correct direction e.g. any arrows must face towards poles;	reject if any field lines touch or cross except at pole	2
(d)	(i)	reading will increase; (because) magnetic field / (repulsive) force will be stronger;	 allow statement to the effect that magnet B will be pushed down more (by magnet A)	2
	(ii)	reading will decrease; (because) magnets will now attract;	allow reading will become negative / zero ; allow statement to the effect that magnet B will be pulled upwards	2

Total for Question 3 = 8 marks

Question number	Answer	Notes	Marks
11 (a)	substitution into $p_1 \times V_1 = p_2 \times V_2$ OR rearrangement; evaluation of volume; correctly expressed in standard form; e.g. $100 \times 0.0043 = 270 \times V_2$ OR $V_2 = p_1 \times V_1 / p_2$ (V_2 =) 0.0016 (m^3) (V_2 =) 1.6×10^{-3} (m^3)	 allow 0.00159… (m^3) allow $1.59… \times 10^{-3}$ (m^3)	3
(b) (i)	idea that particles move more slowly at lower temp; particles collide with walls less often; particles collide with walls less force;	allow RA if clear allow lower kinetic energy (KE) reject no KE allow particles colliding less hard note: with walls/eq must be mentioned once	3
(ii)	dimensionally correct substitution into $p_1 / T_1 = p_2 / T_2$; conversion of either temperature into kelvin; rearrangement; correct subsequent evaluation of p_2 with consistent conclusion; e.g. $270 / 293 = p_2 / 275$ 293 or 275 used anywhere in calculation $p_2 = 270 \times 275 / 293$ (p_2 =) 253 (kPa) so light will not show	ignore units can be implied 27 (kPa) so light will show scores 3 marks 243 (kPa) so light will show scores 2 marks	4

Total for Question 11 = 10 marks