Question number	Answer	Mark
1(a)	An explanation that combines identification – application of knowledge (1 mark) and reasoning/justification – application of understanding (3 marks): • the gas cylinders have the same weight (1) • but cylinder A has the smallest area (that is in contact with the ground) (1) • the smaller the area, the greater the pressure (or reference to $P = \frac{F}{a}$) (1) • hence cylinder A exerts a greater pressure on the ground (1)	**(4)**

Question number	Answer	Additional guidance	Mark
1(b)	rearrangement (1) force up = (force down × distance of force down from pivot)/distance of force up from pivot substitution into correct equation (1) $F = \frac{120 \times 1.3}{0.40}$ answer (1) 390 (N)	award full marks for correct numerical answer without working	**(3)**

Question number	Indicative content	Mark
*1(c)	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. **AO2 (6 marks)** • The bubbles get bigger • Molecules of gas in constant motion • Molecules widely spaced and moving randomly • Molecules impact on surface of bubble/liquid molecules • Average of impacts produces gas pressure • Pressure is due to rate at which gas particles collide with liquid molecules/bubble surface • Liquid pressure decreases as bubble rises • $P_1V_1 = P_2V_2$ • If pressure decreases, volume of bubble will increase/volume of bubble must increase to give a decrease in pressure • As volume increases, rate at which particles collide with surface of bubble decreases	**(6)**

Level	Mark	Descriptor
	0	No awardable content.
Level 1	1–2	The explanation attempts to link and apply knowledge and understanding of scientific ideas, flawed or simplistic connections made between elements in the context of the question. (AO2) Lines of reasoning are unsupported or unclear. (AO2)
Level 2	3–4	The explanation is mostly supported through linkage and application of knowledge and understanding of scientific ideas, some logical connections made between elements in the context of the question. (AO2) Lines of reasoning mostly supported through the application of relevant evidence. (AO2)
Level 3	5–6	The explanation is supported throughout by linkage and application of knowledge and understanding of scientific ideas, logical connections made between elements in the context of the question. (AO2) Lines of reasoning are supported by sustained application of vant evidence. (AO2)