Question number	Answer	Mark
1(a)	An explanation that combines identification via a judgement (maximum 2 marks) to reach a conclusion via justification/reasoning, which must be linked to the judgement (maximum 2 marks): • it is lighter/has a lower density/than steel (1) • so it is easier/more comfortable to wear (1) OR • it is stronger (1) • so it is less likely to be penetrated (1) OR • it is more flexible (1) • so it is easier/more comfortable to wear (1) OR • does not (corrode/rust) (1) • so it will last longer (1)	**(4)**

Question number	Answer	Additional guidance	Mark
1(b)(i)	• calculates total surface area (1) • calculates volume (1) • calculates surface area to volume ratio (1)	Example of calculation Surface area = 6 × 2 × 2 = 24 (cm^2) Volume = 2 × 2 × 2 = 8 (cm^3) Surface area to volume ratio = 24/8 = 3 : 1 Award full marks for correct numerical answer without working	**(3)**

Question number	Answer	Mark
1(b)(ii)	An explanation that combines identification – application of knowledge (1 mark) and reasoning/justification – application of understanding (2 marks): • silver nanoparticles have a much greater surface area to volume ratio than powder (1) OR • silver nanoparticles have a much greater surface area than the same volume of a powder (1) Plus • because chemical reactions take place on the surface of the solid silver catalyst (1) • so there will be more frequent collisions/the rate of reaction will be faster (1) OR • So in a given time, more molecules can come together to react (1)	**(3)**