

Q1. (2018)

a)

01.1	electron		1	AO1 6.4.1.3 5.1.1.3
	atom		1	
	nucleus		1	
	orbit		1	

b)

01.2	positive charge is provided by protons		1	AO1 6.4.1.2 6.4.1.3
	(every atom of the same element contain the) same number of protons	do not accept same number of protons and neutrons ignore reference to electrons	1	

Q2. (2018)

01.4		an answer in the range 1.4×10^{-10} to 1.6×10^{-10} scores 2 marks		AO2 6.4.1.1
	$r = 6 \times 2.5 \times 10^{-11}$	allow a ratio in the range of 5.7–6.3 or measurements that would give this range, correctly substituted	1	
	$r = 1.5 \times 10^{-10}$ (m)	allow 1.4×10^{-10} to 1.6×10^{-10} their ratio $\times 2.5 \times 10^{-11}$ correctly calculated scores 1 mark	1	

Q3. (2021)

02.1	more than 10 000 times bigger		1	AO1 6.4.1.1
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Q4. (2022)

05.3	electrons in the atom fall to a lower energy level		1	AO1 6.4.1.1
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Q5. (2024)

02.2	118		1	AO1 6.4.1.2
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