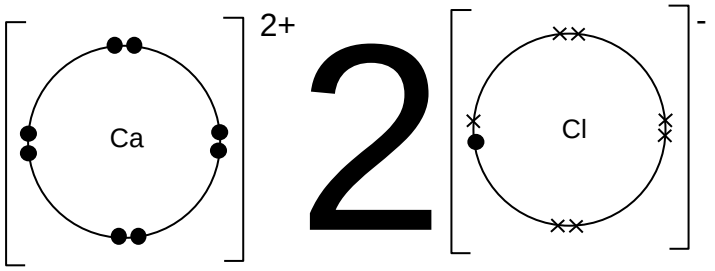
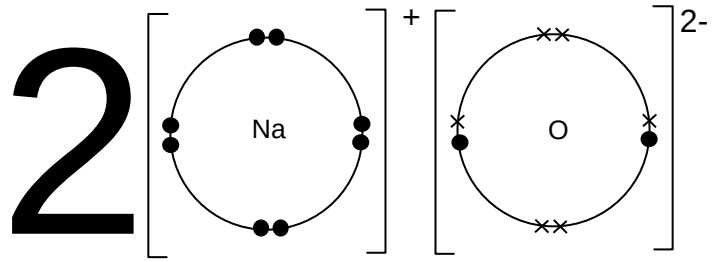
SEC 3E CHEMISTRY 6092

TERM 1 WA1 MARK SCHEME

Question	1	2	3	4	5
Answer	C	C	D	D	C

SECTION B [10 marks]				
6	**(a)**		C	**1**
	(b)		D	**1**
	(c)		D and E (both correct to score)	**1**
	(d)		2.4	**1**
				4
7	**(a)**		aluminium / iron / silicon (any two to score)	**1**
	(b)		hydrogen / chlorine / oxygen (any two to score)	**1**
	(c)	**(i)**	 correct outer shell electrons (1) correct charges on ions (1) correct ratio of ions (1) IGNORE any inner shell electrons	**3**
		(ii)	 correct outer electrons (1) correct charges on ions (1) correct ratio of ions (1) IGNORE any inner shell electrons	**3**
				8
SECTION C [20 marks]				
8	**(a)**		80 (1)°C (1) value (1) unit (1)	**2**
	(b)		horizontal line from end of graph at minute 9 to minute 11	**1**
	(c)		At 20 °C, the particles can only vibrate (about fixed positions) (1) At 120 °C, the particles are free to move / slide / roll (1) The forces of attraction between the particles at 20 °C are stronger than those at 120 °C (1) ORA	**3**
	(d)		decrease from 120 °C to 80 °C (1) and horizontal line at 80 °C (1) decrease from horizontal line to finish at 20 °C at 8 mins (1)	**3**
				9
9	**(a)**		The existence of protons, neutrons and electrons (1) shows that atoms are not indivisible (1) The existence of isotopes / atoms of the same element with different number of	**4**

			neutrons (1) shows that not all atoms of the same element have the same mass (1) ALLOW Atoms of different elements have different mass and properties (1). Some elements (in the Periodic Table) have the same mass e.g. argon and calcium / cobalt and nickel (1) Identification of incorrect ideas (2) Explanation of incorrect ideas (2)	
	(b)		Rutherford calculated the mass of an atom based on the number of protons (as the neutron is yet to be discovered). Hence the mass of an atom based on his model is always less than the true mass of the atom.	**1**
	(c)		Niels Bohr	**1**
	(d)		Hydrogen / H	**1**
	(e)		X is krypton / Kr Y is barium / Ba	**1** **1**
				9