

**AHMAD IBRAHIM SECONDARY SCHOOL  
TERM 1 WEIGHTED ASSESSEMENT 1 2023**

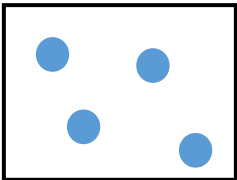
**Sec 3 Express Pure Chemistry 6092**

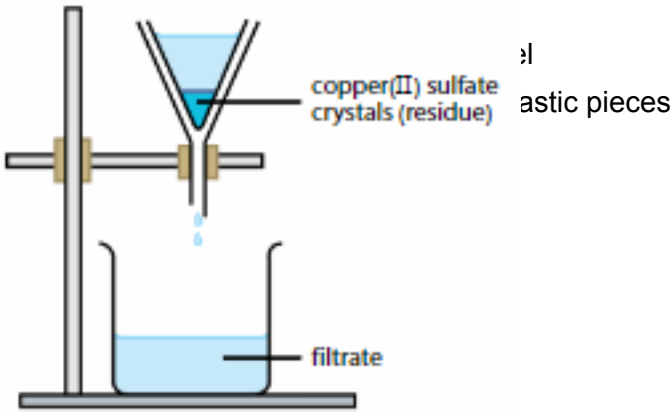
**Marking Scheme**

**Section A (10m)**

1	2	3	4	5	6	7	8	9	10
B	B	C	B	A	C	C	B	D	C

**Structured Questions (20m)**

Qn	Answers	Marks
1(a)	B	1
1(b)		1 gaseous state [drawn far apart]
1(c)	<p>At 0°C, the liquid particles are <b>closely packed in disorderly arrangement and slide across one another</b>.</p> <p>As it is cooled down to -114°C, freezing occurs. Particles lose enough energy to become closer together.</p> <p>Up till -120°C, the particles are <b>very closely packed in an orderly manner</b> and <b>vibrate and rotate at fixed position</b>.</p>	1  1
1(d)	<p>As the temperature increases, the liquid particle of ethanol <b>gains thermal energy</b> and is converted to kinetic energy / start to <b>move faster</b>.</p> <p>At 78°C / boiling point, the particles <b>gain sufficient energy to overcome the forces of attraction</b> between the particles.</p> <p>At 100°C, the gas particles of ethanol are now <b>spread apart</b> / far apart and can <b>move about in any direction</b>.</p>	1  1  1
1(e)(i)		2

	 <p>All components must be drawn and labelled correctly</p> <p>1m – Set up drawn correctly [filtration set-up] 1m – All 3 components labelled correctly</p>	
<b>1(e)(ii)</b>	Fractionating Column	1
<b>1(e)(iii)</b> )	Water, it has the <b>highest boiling point</b> of 100°C and is collected last.	1
		<b>Total: 11M</b>
<b>2(a)</b>	To prevent the sample spot from <b>dissolving</b> into the solvent.	1
<b>2(b)(i)</b>	Xanthophyll and chlorophyll has <b>similar solubilities</b> in propanone solvent.	1
<b>2(b)(ii)</b>	Use a longer piece of filter paper (to allow the components to move a longer distance.)	1
<b>2(c)</b>	$R_f = \frac{11.5}{12}$ $= 0.958$	1
<b>2(d)</b>	<p>Let the distance be <math>a</math>.</p> $R_f = \frac{a}{12}$ $0.9 = \frac{a}{12}$ $a = 10.8$ <p>spot to be drawn on filter paper <b>X</b> at 10.8 cm mark. (Near to 11 cm)</p>	1
		<b>Total: 5M</b>
<b>3(a)</b>	<p>1. She should <b>not add water to the mixture</b> in step 1. She should add <b>ethanol</b> instead.</p> <p>2. She should <b>not wash the crystals with warm water</b> in step 6 as the crystals may dissolve in warm water. She should wash the crystals with <b>cold water</b> instead.</p>	<p>1</p> <p>1</p>

	<b>correct mistake and rectification to obtain 1 mark.</b>	
<b>3(b)</b>	At higher temperature, the <b>particles gained more energy and move faster</b> , and <b>diffuse at a faster rate from a region of higher concentration (from the teacher) to lower concentration (to other parts of the classroom).</b>	1  1
		<b>Total: 4M</b>

Setter: Mrs Silia Goh