SULIT
4541/2
Kimia
Kertas 1
Kertas 2
Ogos/Sept
2008
Skema Pemarkahan

PERSIDANGAN KEBANGSAAN PENGETUA-PENGETUA SEKOLAH MENENGAH MALAYSIA (PKPSM) CAWANGAN MELAKA

PEPERIKSAAN PERCUBAAN SIJIL PELAJARAN MALAYSIA 2008

SKEMA PEMARKAHAN

KIMIA

Kertas 1 and Kertas 2

Kertas soalan ini mengandungi 12 halaman bercetak

SKEMA PERMARKAHAN
KIMIA 4541/1

No soalan	Jawapan	No soalan	Jawapan	No soalan	Jawapan	No soalan	Jawapan	No soalan	Jawapan
1	B	11	B	21	D	31	C	41	D
2	D	12	A	22	C	32	D	42	B
3	D	13	D	23	B	33	C	43	C
4	A	14	D	24	A	34	A	44	A
5	C	15	A	25	D	35	A	45	C
6	B	16	A	26	D	36	C	46	D
7	C	17	D	27	A	37	A	47	D
8	A	18	C	28	B	38	B	48	D
9	A	19	C	29	B	39	D	49	A
10	A	20	C	30	C	40	D	50	D

PAPER 2

Section A

1	(a)		Acetamide / CH_3CONH_2		1
	(b)		Sublimation		1
	(c)	(i)	1. **Temperature** at which **liquid** changes into a **solid**		
			2. at a **particular pressure**		1
		(ii)	82°C		1
		(iii)	1. Heat loss to the surrounding	1	
			2. balanced by heat energy liberated when particles attract one Another // when liquid change to solid	1	2
	(d)	(i)			

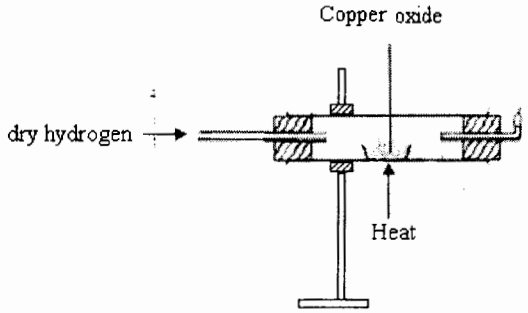
●	proton
	neutron
○	electron

All correct 1

(ii) 4 + 3 = 7 1

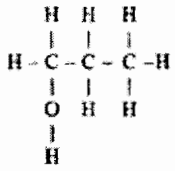
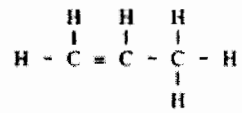
(e) [Able to draw a diagram that shows the following information] 2

1. Diagram of combustion tube containing copper oxide and is clamp using retort stand
2. Dry hydrogen is flow into the combustion tube, excess of hydrogen is flow out and copper oxide is heated
3. Label hydrogen, copper oxide and heat



10

2	(a)	Silicon / Chlorine / Argon	1
	(b)(i)	2.8.8	1
	(ii)	it has achieved the stable octet electron arrangement	1
	(c)	Used as semiconductor to make diodes/transistor	1
	(d) (i)	Atomic radius/size decreases	1
	(ii)	-The number of proton increases across the period from sodium to argon hence the positive nuclear charge also increases	1
		-thus, stronger attraction force between the nucleus and the electrons in the first three occupied shells	1
		- causing the electron to be pulled closer to the nucleus ,therefore the atomic radius decreases	1
	(e)(i)	$2\ Na + Cl_2 \longrightarrow 2\ NaCl$	1
	(ii)	Ionic bond	1
			10

3	(a)	Chemical energy to electrical energy	1
	(b)(i)	Zinc	1
	(ii)	Zink is more electropositive than iron.	1
	(c)	Green to colourless	1
	(d)	Allow ions moving through	1
	(e)	From zinc to iron electrode	1
	(f)	Zinc	1
		Zinc donate electron to iron.	1
	(g)	$Zn \rightarrow Zn^{2+} + 2e$	1
	(h)	No of mol = 0.056 / 56	
		No of atoms = 0.056/ 56 x 6.02×10^{23}	1
			10
4	(a)		1
	(b)	$C_3H_7OH + 5O_2 \rightarrow 3CO_2 + 4H_2O$	1
	(c) (i)	Pleasant smell / fruity smell	1
	(ii)	Ethanoic acid	1
	(d)(i)	Oxidation	1
	(ii)	Orange to green	1
	(e) (i)		1
	(ii)	1,2 dibromo propane	1
	(iii)	[Able to draw and labeled the diagram correctly]	
		1. Functional diagram	1
		2. Label the diagram	1
			10

5 (a) 1. Correct formula of reactants and products 1
2. Balance chemical equations. 1 2

$Mg + 2HCl \rightarrow MgCl_2 + H_2$

(b) (i) Experiment I : $50cm^3$ / 3min // 16.67 cm^3 min^{-1}// 16.7 cm^3 min^{-1} 1

Experiment II : 50 cm^3/5 min // 10.00 cm^3 min^{-1}//10.0 cm^3 min^{-1} 1 2

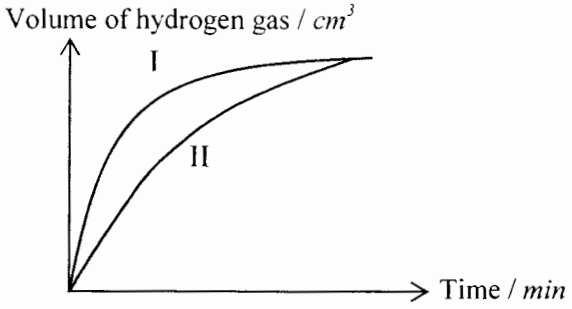
(ii) 1. Rate of reaction in experiment I is higher than experiment II 1

2. Hydrochloric acid in experiment I more concentrated 1

3. Number of particles / H^+ ion increases 1

4. Frequency of effective collision increases 1 4

(c)



[Labeled of axes are correct] 1
[The curves are correct] 1 2

10

6 (a) (i) Acidified potassium manganate (VII) 1

(b) (i) Green colour of iron(II) sulphate turn to yellow 1

(ii) Purple colour of acidified potassium manganate (VII) turn colourless 1

(c) From electrode A to electrode B through external circuit 1

(d) (i) $Fe^{2+} \longrightarrow Fe^{3+} + e^-$ 1

(ii) + 2 to +3 1

(iii) oxidation 1

(e) (i) $MnO^-_4 + 8H^+ + 5e^- \longrightarrow Mn^{2+} + 4H_2O$ 1

(ii) Acidified potassium dichromate(VI)/bromine water/any suitable oxidising agent 1

(f) To allow the flow of ions 1

10

SECTION B

No.	Suggested Answer		Marks
7(a) (i)	Chlorine : 2.8.7	1	
	Carbon : 2.4	1	2
(ii)	- chlorine atom has 7 valence electrons needs one electron	1	
	- carbon atom has 4 valence electrons ,hence it needs 4 more electron	1	
	- so that **each atom** achieves stable octet electron arrangement	1	
	- **share electrons** between them	1	
	- **four chlorine atoms** , each contributes 1 electron // [diagram]	1	
	- **one carbon atom** contributes 4 electrons //[diagram]	1	
	- four single covalent bonds are formed	1	
	- the molecular formula is CCl_4	1	
	- diagram [no. of electrons in all the occupied shells in the carbon and chlorine atoms - correct]	1	
	[sharing of 4 pairs of single covalent bonds between 1 carbon atom and 4 chlorine atoms]	1	10
(iii)	Colourless liquid	1	1
(b)	[Procedures of the experiment] eg. 1. Scoop a quarter spatula of magnesium chloride and add into a test tube.	1	
	2. Measure 2-5 cm^3 of distilled water and add to the test tube containing the magnesium chloride.	1	
	3. Stopper the test tube and shake well.	1	
	4. Repeat Steps 1 to 3 using [named organic solvent eg diethyl ether]	1	
	5. Observe the changes and record them in a table	1	

[Results]
eg

Solvent	Observation
Distilled water	Colourless solution obtained
[named organic solvent]	Solid crystals insoluble in liquid

1

1

[Conclusion]
eg
Magnesium chloride is insoluble in organic solvent/[named organic solvent] but soluble in water.

7

20

No.		Rubric	Mark
8	(a)(i)	1. Substance which ionises in water	1
		2. to produce hydrogen ion	1 ... 2
	(ii)	1. pH value of ethanoic acid is higher than sulphuric acid	
		2. ethanoic acid is a weak acid; sulphuric acid is a strong acid	1
		3. ethanoic acid ionises partially in water to produce lower concentration of hydrogen ion	1 1
		4. sulphuric acid ionises completely in water to produce higher concentration of hydrogen ion	1 ... 4
	(b)	Number of mole $BaCl_2$ = (0.5 x 50)/1000	1
		= 0.025 mol	1
		From the equation, 1 mol of $BaCl_2$ produces 1 mol $BaSO_4$ // 0.025 mol of $BaCl_2$ produces 0.025 mol $BaSO_4$	1
		Mass = 0.025 x 233 = 5.825 g	1 ... 4
		[*Suggested answer*]	
		1. Measure 50 cm^3 of barium chloride 0.5 mol dm^{-3} in a measuring cylinder.	1
		2. Pour the solution into the beaker.	1
		3. Measure 50 cm^3 of sodium suphate 0.5 mol dm^{-3} in a measuring cylinder.	1
		4. Pour the solution into the beaker containing barium chloride solution.	1
		5. Stir the mixture with glass rod and rinse with distilled water.	1
		6. Filter the precipitate.	1
		7. Dry the salt using/between two pieces of filter paper.	1 ... 7
	(c)	1. Calcium carbonate / lime stone // Calcium oxide / lime	1
		2. Lime/lime stone reacts with acidic soil	1
		3. neutralise acidity in soil	1 ... 3
			20

SECTION C

9	(a)	(i)	1. Tin, a foreign atom in bronze have different size from copper atom 2. disrupt the orderly arrangement of copper atoms 3. prevent the layers of metal atoms from sliding over each other easily 4. makes bronze harder and stronger then copper.	1 1 1 1 [4 marks]
		(ii)	Apparatus & materials: Bronze block, copper block, steel ball bearing, 1 kg weight, meter ruler, retort stand with clamp, cellophane tape and thread. - a meter ruler is clamped to a retort stand - a steel ball bearing is placed on the copper block by using cellophane tape. - 1 kg weight is hung [50 cm] above the copper block. - the weight is dropped onto the ball bearing on the copper block - the diameter of the dent is measured. - the experiment is repeated using a bronze block to replace the copper block. - the diameter of the dents on the bronze block is smaller than the diameter on the copper block - shows that bronze / alloy is harder than pure metal/ copper - [ball bearing is put on top of metal/ alloy block, meter ruler is clamped to the retort stand, the 1 kg weight is hung above the block] - [label weight, copper / bronze block, ball bearing, meter ruler]	1 1 1 1 1 1 1 1 1 [10 marks]

(b)

	Type of food additive	Example	
1.	Flavourings	Monosodium glutamate/ aspartame/sugar/salt/vinegar/[ester]	1+1
2.	Antioxidants	Ascorbic acid/Sodium citrate/	1+1
3.	Preservatives	Salt/Sugar/Vinegar/Sodium nitrite/Sodium nitrate/Benzoic acid/Sodium benzoate	1+1 [6 marks]

No.	Suggested Answer	Marks	
10a(i)	- correct name of insoluble salt	1	
(ii)	- heat change/absorbed/released	1	
	- when one mole of a precipitate is formed from its ions in aqueous solution.	1	3
b	[correct chemical / ionic equation] eg. $AgNO_3 + NaCl \longrightarrow AgCl + NaNO_3$	1	
	[Materials]	1	
	[Apparatus]	1	
	[Procedures]		
	eg		
	1. 20 cm^3 of 0.5 $moldm^{-3}$ silver nitrate solution is measured using a measuring cylinder and is poured into a plastic cup.	1	
	2. 20 cm^3 of 0.5 $moldm^{-3}$ sodium chloride solution is measured using another measuring cylinder and is poured another plastic cup.	1	
	3. The initial temperatures of both these solutions are measured after the solutions are left aside for a few minutes.	1	
	4. The sodium chloride solution is added to silver nitrate solution.	1	
	5. The mixture is stirred with a thermometer.	1	
	6. The highest temperature obtained is measured and recorded.	1	
	[Results] Initial temperature : } Highest temperature : } 1m	1	
	Increase in temperature : Highest temp. –Initial temp.	1	

	[Calculation] eg - calculation of mole - calculation of heat released - calculation of Heat of Precipitation [Energy level diagram] eg. - axis labeled energy with two different energy levels - correct energy level for heat of Precipitation [Precautionary measures] eg. - add quickly and carefully - stir the mixture throughout the activity - insulate the cup / cover the plastic cup containing the solution	 1 1 1 1 1 Any 2 1 + 1	 max17
			20

END OF MARKING SCHEME

4541/3
Kimia
Kertas 3
Ogos/Sept.

1 1/2 jam

PERSIDANGAN KEBANGSAAN PENGETUA-PENGETUA
SEKOLAH MENENGAH MALAYSIA (PKPSM)
CAWANGAN MELAKA

PEPERIKSAAN PERCUBAAN
SIJIL PELAJARAN MALAYSIA 2008

KIMIA

Kertas 3

Satu jam tiga puluh minit

PERATURAN PEMARKAHAN

Question		Details	Score
1.	(a)	*Able to state **three** observations for the experiment accurately.* Sample answer: 1. White fumes released 2. Mass of crucible content increase // Reading of electronic balance increase 3. White solid / powder formed 4. Bright flame	3
		*Able to state **two** observations for the experiment accurately.*	2
		*Able to state **one** observation for the experiment accurately.*	1
		*Able to state **three inferences related to the observations** accurately.* Sample answer: 1. Magnesium oxide formed 2. Magnesium combine with oxygen 3. Magnesium being oxidized 4. Magnesium reactive toward oxygen	3
		*Able to state **two inferences related to the observations** accurately.*	2
		*Able to state **one inference related to the observation** accurately.*	1

<table>
<tr>
<td></td>
<td>(b)</td>
<td>
Able to:
i. calculate the mass of magnesium
ii. calculate the mass of oxygen
iii. show steps to determine empirical formula.

Sample answer:
Mass of magnesium : (36.05 – 35.50) g
= 0.55 g
Mass of oxygen : (36.42 – 36.05) g
= 0.37 g

<table>
<tr><th>Element</th><th>Magnesium</th><th>Oxygen</th></tr>
<tr><td>Number of mole</td><td>0.55 / 24
= 0.023</td><td>0.37 / 16
= 0.023</td></tr>
<tr><td>Ratio of mole</td><td>0.023 /0.023
= 1</td><td>0.023 /0.023
= 1</td></tr>
</table>
Empirical formula = MgO
</td>
<td>3</td>
</tr>
<tr>
<td></td><td></td>
<td>Able to give any two answers above</td>
<td>2</td>
</tr>
<tr>
<td></td><td></td>
<td>Able to give any one answer above</td>
<td>1</td>
</tr>
<tr>
<td></td><td></td><td></td><td></td>
</tr>
<tr>
<td></td>
<td>(c)
(i)</td>
<td>
Able to state
Cannot / No
- score 1

Able to give the accurate reasons
- score 2

Sample answer:
Cannot. Copper (less reactive than / below) hydrogen in Reactivity Series of metals.
</td>
<td>3</td>
</tr>
<tr>
<td></td><td></td>
<td>
Able to state
Cannot / No
- score 1

Able to give the correct reasons
- score 1

Sample answer:
Cannot. Copper (less reactive than / below) hydrogen.
</td>
<td>2</td>
</tr>
</table>

		Able to state Cannot / No - score 1 Or Able to give an idea - score 1	1
	(c) (ii)	*Able to give accurate suggestion* Sample answer: Reduction reaction of copper(II) oxide using hydrogen gas	3
		Able to give correct suggestion Sample answer: Combustion of copper(II) oxide in hydrogen gas	2
		Able to give an idea Sample answer: Combustion of metal in hydrogen gas	1
	(d)	*Able to give all **three** correct answers.* Sample answer: i. Substance that being oxidized: Hydrogen / H_2 ii. Substance that being reduce: Copper(II) oxide / CuO iii. Reducing agent: Hydrogen / H_2	3
		*Able to give **two** correct answers.*	2
		*Able to give **one** correct answers.*	1

<table>
<tr>
<td>2.</td>
<td>(a)
(i)</td>
<td>
Able to record all readings accurately to two decimal points with unit.

Sample answer :
<table>
<tr><th></th><th>Initial burette readings</th><th>Final burette readings</th></tr>
<tr><td>First Titration</td><td>0.20 cm^3</td><td>24.30 cm^3</td></tr>
<tr><td>Second Titration</td><td>1.55 cm^3</td><td>25.60 cm^3</td></tr>
<tr><td>Third Titration</td><td>3.00 cm^3</td><td>27.20 cm^3</td></tr>
</table>
If <u>all burette readings from bottom of meniscus</u>, score = 1
</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>
Able to record all readings correctly.

readings to two decimal point without unit
readings to one decimal point without unit

Sample answer:
<table>
<tr><th></th><th>Initial burette readings</th><th>Final burette readings</th></tr>
<tr><td>First Titration</td><td>0.20</td><td>24.30</td></tr>
<tr><td>Second Titration</td><td>1.55 / 1.60</td><td>25.60</td></tr>
<tr><td>Third Titration</td><td>3.00</td><td>27.20</td></tr>
</table>
Or
<table>
<tr><th></th><th>Initial burette readings</th><th>Final burette readings</th></tr>
<tr><td>First Titration</td><td>0.2</td><td>24.3</td></tr>
<tr><td>Second Titration</td><td>1.5 / 1.6</td><td>25.6</td></tr>
<tr><td>Third Titration</td><td>3.0</td><td>27.2</td></tr>
</table>
</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Able to record three to five readings correctly.</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</table>

<table>
<tr>
<td>1.</td>
<td>(a)

(ii)</td>
<td>
Able to construct a table that contains the following information.
1. Headings in the table : Titration number, Initial burette readings, Final burette readings and Volume of sulphuric acid.
2. Transfer all burette readings from (a) (i) correctly
3. With unit

Sample answer:
<table>
<tr><td>Titration number</td><td>1</td><td>2</td><td>3</td></tr>
<tr><td>Final burette readings / cm^3</td><td>24.30</td><td>25.60</td><td>27.20</td></tr>
<tr><td>Initial burette readings / cm^3</td><td>0.20</td><td>1.55</td><td>3.00</td></tr>
<tr><td>Volume of sulphuric acid / cm^3</td><td>24.10</td><td>24.05</td><td>24.20</td></tr>
</table>
If there is a (only one) mistake in the data, score = 2
</td>
<td>3</td>
</tr>
</table>

Able to construct a table that contains the following information.

1. *Headings in the table: Titration number, Initial burette readings, Final burette readings and volume of sulphuric acid.*
2. *Transfer **all** burette readings from (a) (i) correctly*
3. *Without unit or unit at data*

Sample answer:

Titration number	1	2	3
Final burette readings	24.30	25.60	27.20
Initial burette readings	0.20	1.55/1.60	3.00
Volume of sulphuric acid	24.10	24.05	24.20

Or

Titration number	1	2	3
Final burette readings	24.30 cm^3	25.60 cm^3	27.20 cm^3
Initial burette readings	0.20 cm^3	1.55 cm^3	3.00 cm^3
Volume of sulphuric acid	24.10 cm^3	24.05 cm^3	24.20 cm^3

Or

Titration number	1	2	3
Final burette readings	24.3	25.6	27.2
Initial burette readings	0.2	1.5/1.6	3.0
Volume of sulphuric acid	24.1	24.0	24.2

2

		Able to construct a table that contains the following information. *1. Headings in the table* Sample answer: **Final burette readings** | | | | **Initial burette readings** | | | | **Volume of sulphuric acid** | | | |	1
	(b)	*Able to state the colour change accurately.* Sample answer : The colour of phenolphthalein change from pink to colourless	3
		Able to state the colour change inaccurately. Sample answer : Change to colourless	2
		Able to state an idea about the observation. The colour changes // pink	1
	(c)	*Able to give the operational definition **accurately** by stating the following **three** information.* *1. Volume of sulphuric acid added* *2. Neutralize sodium hydroxide solution completely* *3. Phenolphthalein change from pink to colourless* Sample answer: The end point of neutralization is the volume of sulphuric acid added to neutralize the sodium hydroxide solution completely and determined by the colour change of phenolphthalein from pink to colourless.	3

		Able to give the operational definition ***correctly*** *by stating any* ***two*** *of the information above.* Sample answer: The end point of neutralization is the volume of sulphuric acid added to neutralize the sodium hydroxide solution completely. Or The end point of neutralization is the volume of sulphuric acid added and the phenolphthalein colour change from pink to colourless.	2
		Able to give the operational definition ***correctly*** *by stating any* ***one*** *of the information above.* Sample answer: The end point of neutralization is the volume of sulphuric acid added. Or The end point of neutralization is when sodium hydroxide solution being neutralize completely. Or The end point of neutralization is when phenolphthalein change from pink to colourless.	1
	(d)	*Able to make correct classification for the* ***six*** *acids.* Sample answer: **Strong acid** / **Weak acid** Phosphoric acid / Acetic acid Hydrochloric acid / Propanoic acid Nitric acid / Butanoic acid	3

<table>
<tr><td></td><td></td><td>Able to make correct classification for any four acids.

Sample answer:

<table><tr><th>Strong acid</th><th>Weak acid</th></tr><tr><td>Phosphoric acid</td><td>Acetic acid</td></tr><tr><td>Hydrochloric acid</td><td>Butanoic acid</td></tr><tr><td>Propanoic acid</td><td>Nitric acid</td></tr></table></td><td>2</td></tr>
<tr><td></td><td></td><td>Able to make correct classification for any one acids.

Sample answer:

<table><tr><th>Strong acid</th><th>Weak acid</th></tr><tr><td>Phosphoric acid</td><td>Acetic acid</td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table></td><td>1</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td>3</td><td>(a)</td><td>Able to give the statement of the problem accurately and response is in question form.

Sample answer:
How to determine and identify propane and propene using acidified potassium manganate (VII)?</td><td>3</td></tr>
<tr><td></td><td></td><td>Able to give the statement of the problem correctly.

Sample answer:
How to differentiate between liquid P and liquid Q ?//
How to identify propane and propene ?</td><td>2</td></tr>
<tr><td></td><td></td><td>Able to give an idea of statement of the problem correctly.

Sample answer:
How to identify/determine/differentiate alkane and alkene ?</td><td>1</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
</table>

	(b)	*Able to state* ***the three*** *variables correctly.* *Manipulated variable:* Sample answer: Hexane and hexene *Responding variable:* Observation when hexane and hexene react with acidified potassium manganate.(VII) *Constant variable:* Volume of hexane and hexene	3
		Able to state ***any two*** *variables correctly*	2
		Able to state ***any one*** *variables correctly*	1
	(c)	*Able to state the relationship between the manipulated variable and the responding variable accurately by stating the* ***colour change in both liquid P and Q.*** Sample answer: If liquid P decolourised purple colour of acidified potassium manganate(VII), so liquid P is hexene // vice versa	3
		Able to state the relationship between the manipulated variable and the responding variable accurately by stating the ***colour change in hexene or hexane only.*** Sample answer: Hexene will decolourised purple colour of acidified potassium manganate(VII)	2
		Able to state the idea of hypothesis correctly. Sample answer: Alkene will change the colour of acidified potassium manganate(VII)	1
	(d)	*Able to give adequate list of materials and apparatus.* Sample answer: Liquid P, Liquid Q, acidified potassium manganate(VII) solution, Test tube, dropper, stopper	3

<table>
<tr><td></td><td></td><td>Able to give a list of materials and apparatus.

Sample answer:
Liquid P, Liquid Q, acidified potassium manganate(VII)
Test tube, stopper.</td><td>2</td></tr>
<tr><td></td><td></td><td>Able to give an idea of materials and apparatus.

Sample answer:
Liquid P, Liquid Q, potassium manganate
Beaker / any suitable container</td><td>1</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td>(e)</td><td>Able to state the following five steps:

Sample answer:
1. Some liquid P and liquid Q are poured into two different test tubes.
2. Three drops of acidified potassium manganate(VII) are added into the test tubes.
3. The test tubes are closed with stoppers.
4. The mixtures are shaken.
5. The observations are recorded.</td><td>3</td></tr>
<tr><td></td><td></td><td>Step 1, 2, 4 and 5</td><td>2</td></tr>
<tr><td></td><td></td><td>Step 1 and 2</td><td>1</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td>(f)</td><td>Able to exhibit the tabulation of data that includes the following four information :
1. Heading liquid
2. Two liquid
3. Heading for observation
4. 2x3 or 3x2 table

Sample answer :
<table><tr><th>Liquid</th><th>Observation</th></tr><tr><td>Liquid P</td><td></td></tr><tr><td>Liquid Q</td><td></td></tr></table></td><td>3</td></tr>
</table>

<table>
<tr>
<td></td>
<td></td>
<td>Able to exhibit the tabulation of data that includes the following four information :
1. Heading for liquid
2. One liquid
3. Heading for observation
4. 2x3 or 3x2 table

Sample answer :
<table><tr><td>Liquid</td><td>Observation</td></tr><tr><td>Liquid P</td><td></td></tr><tr><td></td><td></td></tr></table></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Able to exhibit the tabulation of data that includes the following four information :
1. Heading for liquid
2. Heading for observation
3. 2x3 or 3x2 table

Sample answer :
<table><tr><td>Liquid</td><td>Observation</td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table></td>
<td>1</td>
</tr>
<tr>
<td></td>
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<td></td>
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<tr>
<td></td>
<td></td>
<td>END OF MARK SCHEME</td>
<td></td>
</tr>
</table>