

# CHEMISTRY 9-1

0971 P3

2020 — 2025

|            |                                         |          |
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1 - (0971/31\_Summer\_2020\_Q4)

The properties of five alkenes at room temperature are shown in the table.

| alkene  | number of carbon atoms in a molecule | state at room temperature | density in g/cm <sup>3</sup> | boiling point / °C |
|---------|--------------------------------------|---------------------------|------------------------------|--------------------|
| ethene  | 2                                    | gas                       | 0.0012                       | −104               |
| propene | 3                                    | gas                       | 0.0018                       | −47                |
| butene  | 4                                    | gas                       | 0.0024                       |                    |
| pentene | 5                                    | liquid                    | 0.64                         | 30                 |
| hexene  | 6                                    | liquid                    | 0.67                         | 63                 |

(a) Answer these questions using only the information in the table.

(i) Predict the boiling point of butene.

..... °C [1]

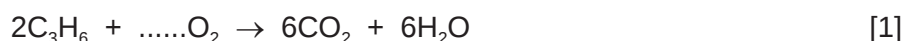
(ii) Describe the general trend in the density of the alkenes.

..... [1]

(iii) Suggest why the densities of the first three alkenes are much lower than the density of pentene and hexene.

..... [1]

(b) (i) Complete the chemical equation for the complete combustion of propene.



(ii) Describe a test for carbon dioxide.

test .....

observations ..... [2]

(iii) Universal indicator is added to an aqueous solution of carbon dioxide.

- What colour change is observed?

from green to .....

- Give a reason for your answer.

.....  
 ..... [2]

(c) When propene undergoes incomplete combustion, carbon monoxide is formed.

(i) What condition is needed for incomplete combustion?

.....  
..... [1]

(ii) Give **one** adverse effect of carbon monoxide on health.

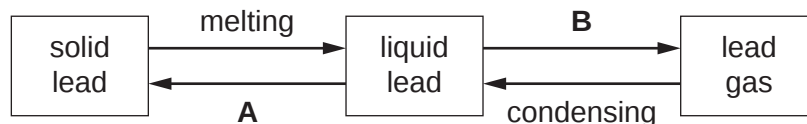
..... [1]

[Total: 10]

2 - (0971/31\_Summer\_2022\_Q5)

This question is about Group IV elements and their compounds.

(a) The changes of state of lead are shown.



Name the changes of state represented by **A** and **B**.

**A** .....

**B** .....

[2]

(b) Use the kinetic particle model to describe the differences between liquid lead and lead gas in terms of:

- the separation of the particles .....

.....

.....

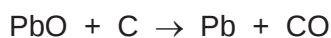
- the motion of the particles. ....

.....

.....

[4]

(c) Lead is extracted from lead(II) oxide by heating with carbon.



Describe how this equation shows that lead(II) oxide is reduced.

.....

..... [1]

(d) Lead is a pollutant of the air.

(i) State **one** source of lead in the air.

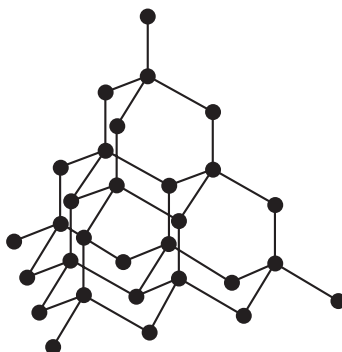
..... [1]

(ii) State **one** adverse effect of lead on health.

..... [1]

(e) Diamond is a form of carbon.

The structure of diamond is shown.



(i) Choose the word which best describes the structure of diamond.

Draw a circle around your chosen answer.

giant                  ionic                  metallic                  simple [1]

(ii) Name the type of bonding in diamond.

..... [1]

(iii) Give **one** use of diamond.

..... [1]

(iv) Deduce the electronic structure of carbon.

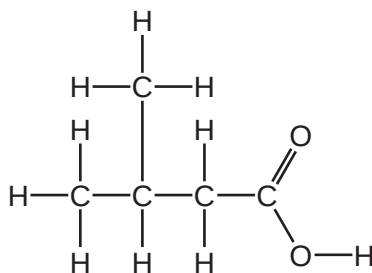
Use the Periodic Table to help you.

..... [1]

[Total: 13]

3 - (0971/32\_Winter\_2022\_Q7 )

(a) The structure of compound **T** is shown.



(i) Choose from the list the word that describes compound **T**.

alcohol  
alkane  
alkene  
carboxylic acid

..... [1]

(ii) Deduce the formula of compound **T** to show the number of carbon, hydrogen and oxygen atoms.

..... [1]

(b) Compound **T** reacts with ethanol in the presence of a catalyst.

(i) State the meaning of the term *catalyst*.

..... [1]

(ii) Complete the sentence about ethanol using a word from the list.

**combustion**      **cracking**      **electrolysis**      **fermentation**

Ethanol is manufactured from ethene or by ..... [1]

(c) Ethene can be produced from ethanol.

(i) Draw the structure of ethene to show all of the atoms and all of the bonds.

[1]

- (ii) Ethene is a gas at room temperature.

Use the kinetic particle model to describe the separation of the particles in a gas.

..... [1]

- (iii) Ethene can be produced by cracking long-chain hydrocarbons to form short-chain hydrocarbons.

Explain why long-chain hydrocarbons are cracked to form short-chain hydrocarbons.

.....  
..... [1]

- (iv) Ethene can be polymerised.

State the name of the polymer formed.

..... [1]

- (d) *Terylene* is a polymer.

Give **one** use of *Terylene*.

..... [1]

- (e) Name a polymer that is a constituent of food.

..... [1]

[Total: 10]

4 - (0971/31\_Summer\_2023\_Q2)

(a) Table 2.1 shows some properties of the halogens.

**Table 2.1**

| halogen  | melting point<br>in °C | boiling point<br>in °C | density at room<br>temperature and<br>pressure in g/cm <sup>3</sup> |
|----------|------------------------|------------------------|---------------------------------------------------------------------|
| fluorine | −220                   | −188                   | 0.0016                                                              |
| chlorine | −101                   | −35                    | 0.0032                                                              |
| bromine  |                        | +59                    | 3.1                                                                 |
| iodine   | +114                   | +184                   |                                                                     |

Use the information in Table 2.1 to predict:

(i) the melting point of bromine

..... [1]

(ii) the density of iodine at room temperature and pressure

..... [1]

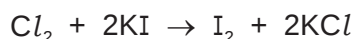
(iii) the physical state of chlorine at −10°C. Give a reason for your answer.

physical state .....

reason .....

..... [2]

(b) The equation for the reaction of aqueous chlorine with aqueous potassium iodide is shown.

(i) Choose the word which best describes this type of chemical reaction.  
Draw a circle around your chosen answer.

**addition**      **displacement**      **neutralisation**      **polymerisation**      [1]

(ii) Explain why aqueous iodine does **not** react with aqueous potassium chloride.

..... [1]

(c) Complete the diagram in Fig. 2.1 to show the electronic configuration of a chlorine atom.

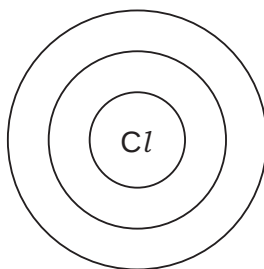


Fig. 2.1

[1]

(d) Describe a test for chlorine.

test .....

observations .....

[2]

[Total: 9]

5 - (0971/32\_Summer\_2023\_Q6)

- (a) A student investigates the reaction of different-sized pieces of calcium carbonate with dilute hydrochloric acid.

The sizes of the pieces of calcium carbonate are:

- large
- medium
- small.

All other conditions stay the same.

Table 6.1 shows the time taken for each reaction to finish.

**Table 6.1**

| size of pieces of calcium carbonate | time taken for the reaction to finish/s |
|-------------------------------------|-----------------------------------------|
|                                     | 160                                     |
|                                     | 50                                      |
|                                     | 450                                     |

- (i) Complete Table 6.1 by writing the sizes of the pieces of calcium carbonate in the first column. [1]

- (ii) Describe the effect on the time taken for small pieces of calcium carbonate to finish reacting with dilute hydrochloric acid when the temperature is increased.

All other conditions stay the same.

..... [1]

- (iii) Describe the effect on the time taken for small pieces of calcium carbonate to finish reacting with dilute hydrochloric acid when the concentration of hydrochloric acid is decreased.

All other conditions stay the same.

..... [1]

- (b) Crystals of calcium chloride can be prepared by reacting excess calcium carbonate with dilute hydrochloric acid.

Name the process used to separate the unreacted calcium carbonate from the rest of the reaction mixture.

..... [1]

(c) Calcium carbonate is insoluble in water.

Choose one **other** compound that is insoluble in water.

Tick (✓) **one** box.

ammonium sulfate

☐

potassium nitrate

☐

silver chloride

☐

sodium hydroxide

☐

[1]

[Total: 5]

6 - (0971/32\_Winter\_2023\_Q2)

Petroleum is a mixture of hydrocarbons.

(a) Describe **two** characteristics of a mixture.

- 1 .....
- 2 .....
- [2]

(b) Fig. 2.1 shows a fractionating column for separating petroleum into different hydrocarbon fractions.

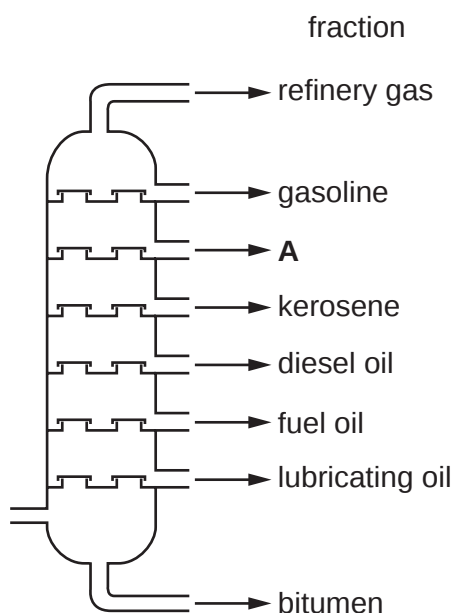


Fig. 2.1

- (i) On Fig. 2.1, draw an **X** inside the column to show where the hydrocarbon with the lowest volatility collects. [1]
- (ii) Name the fraction labelled **A** in Fig. 2.1. [1]
- .....
- (iii) State the name of the fraction which has hydrocarbons with the longest chain length. [1]
- .....
- (iv) State **one** use of the fuel oil fraction. [1]
- .....

[Total: 6]

7 - (0971/32\_Winter\_2023\_Q4 )

Tin is a solid at room temperature.

(a) State **two** general properties of a solid.

- 1 .....
- .....
- 2 .....
- .....

[2]

(b) Fig. 4.1 shows the physical states of tin.

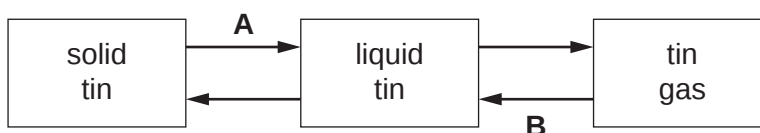


Fig. 4.1

Name the changes of physical states **A** and **B**.

- A** .....
- B** .....

[2]

(c) Describe solid and liquid tin in terms of the separation and motion of the particles.

solid tin

separation .....

motion .....

liquid tin

separation .....

motion .....

[4]

(d) A sealed gas syringe contains 80 cm<sup>3</sup> of carbon dioxide gas.

State how decreasing the temperature affects the volume of carbon dioxide gas in the gas syringe when the pressure remains constant.

..... [1]

[Total: 9]

8 - (0971/32\_Winter\_2023\_Q8 )

Zinc chloride is an ionic compound.

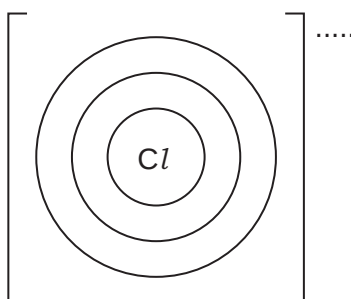
**(a)** Ionic compounds are good electrical conductors when molten or in aqueous solution.

Describe one **other** physical property of ionic compounds.

..... [1]

**(b)** Complete Fig. 8.1 to show:

- the electronic configuration of a chloride ion
- the charge on the ion.



**Fig. 8.1**

[2]

**(c) (i)** Deduce the number of protons and neutrons in the zinc ion shown.



number of protons .....

number of neutrons .....

[2]

**(ii)** Complete this sentence about positive ions.

Positive ions are known as ..... [1]

(d) Molten zinc chloride is electrolysed using graphite electrodes.

State the names of the products at each electrode and give the observations at the positive electrode.

product at the negative electrode .....

product at the positive electrode .....

observations at the positive electrode

..... [3]

(e) Graphite electrodes conduct electricity.

(i) State one **other** property that the electrode should have.

..... [1]

(ii) Choose the correct statement about the structure and bonding in graphite.

Tick (✓) **one** box.

simple ionic

☐

simple covalent

☐

giant ionic

☐

giant covalent

☐

[1]

(iii) State **one** use of graphite other than as an electrode.

..... [1]

[Total: 12]

9 - (0971/32\_Winter\_2024\_Q8)

- (a) A student investigates the reaction of small pieces of calcium carbonate with excess dilute hydrochloric acid of three different concentrations.  
The time taken for each reaction to finish is recorded.

The three concentrations of acid are:

- $0.5 \text{ mol/dm}^3$
- $1.0 \text{ mol/dm}^3$
- $2.0 \text{ mol/dm}^3$ .

All other conditions stay the same.

Table 8.1 shows the time taken for each reaction to finish.

**Table 8.1**

| concentration of dilute hydrochloric acid in $\text{mol/dm}^3$ | time taken for the reaction to finish in s |
|----------------------------------------------------------------|--------------------------------------------|
|                                                                | 32                                         |
|                                                                | 64                                         |
|                                                                | 16                                         |

- (i) Complete Table 8.1 by writing the concentrations in the first column. [1]

- (ii) Describe the effect on the time taken for the reaction to finish when the reaction is carried out at a lower temperature.

All other conditions stay the same.

..... [1]

- (iii) Describe the effect on the time taken for the reaction to finish when powdered calcium carbonate is used instead of small pieces of calcium carbonate.

All other conditions stay the same.

..... [1]

(b) Molten calcium chloride is electrolysed using inert electrodes.

(i) Name the products at the positive and negative electrodes.

product at the positive electrode .....

product at the negative electrode ..... [2]

(ii) Choose from the list the substance that is used as an inert electrode.

Draw a circle around your chosen answer.

**graphite      iodine      magnesium      phosphorus** [1]

(c) Carbon dioxide is a gas at room temperature.

Describe the motion and separation of the particles in carbon dioxide gas.

motion .....

.....

separation .....

.....

[2]

[Total: 8]

10 - (0971/31\_Summer\_2025\_Q7)

This question is about energy changes in reactions.

(a) Table 7.1 shows the results of four experiments.

**Table 7.1**

| experiment | initial temperature / °C | final temperature / °C |
|------------|--------------------------|------------------------|
| 1          | 17                       | 23                     |
| 2          | 21                       | 13                     |
| 3          | 18                       | 14                     |
| 4          | 19                       | 26                     |

(i) State which experiment shows the greatest temperature change.

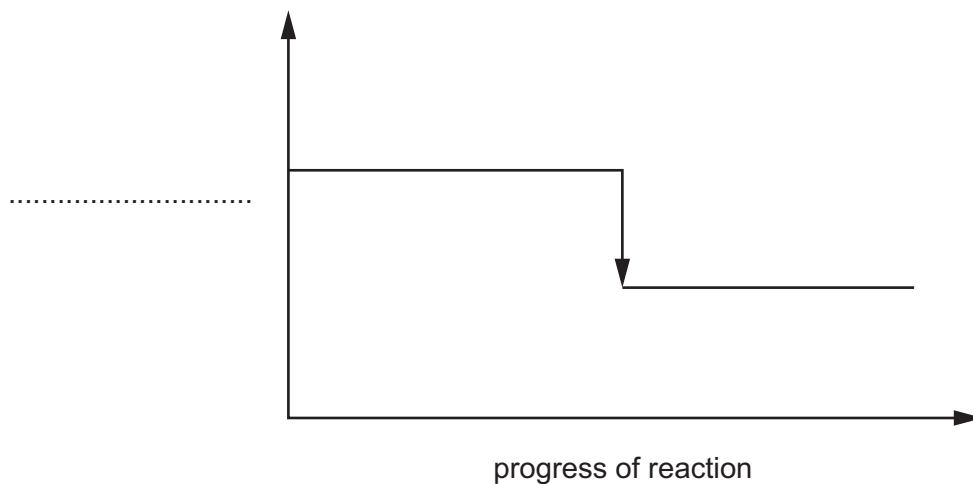
..... [1]

(ii) In experiment 4, zinc was added to dilute hydrochloric acid.

Complete the symbol equation.



(iii) Fig. 7.1 shows the incomplete reaction pathway diagram for the reaction in Experiment 4.



**Fig. 7.1**

Complete Fig. 7.1 by labelling:

- the vertical axis
- the reactants
- the products.

[2]

(b) Fig. 7.2 shows the changes of state of copper.

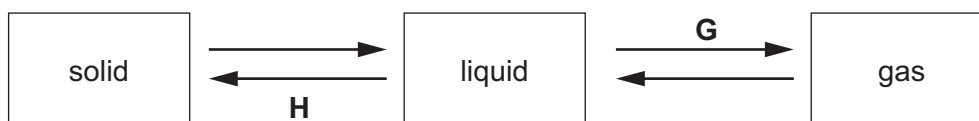


Fig. 7.2

Name the changes of state labelled **G** and **H**.

**G** .....

**H** .....

[2]

[Total: 7]

11 - (0971/32\_Winter\_2025\_Q2)

The symbol for an atom of krypton is shown.



(a) Complete Table 2.1 to show the number of electrons and neutrons in one atom of  ${}_{36}^{84}\text{Kr}$ .

Table 2.1

|                     |  |
|---------------------|--|
| number of electrons |  |
| number of neutrons  |  |

[2]

(b) Krypton is a gas at room temperature and pressure.

A sample of krypton is placed in a sealed syringe with a freely moving plunger.

Complete Table 2.2 to show the effect, if any, on the volume of krypton when:

- the temperature of the krypton is decreased
- the pressure of the krypton is increased.

Use the words **increases**, **decreases** or **no change** in your answer.

Table 2.2

| change                   | effect on the volume of krypton |
|--------------------------|---------------------------------|
| temperature is decreased |                                 |
| pressure is increased    |                                 |

[2]

(c) When krypton is cooled, it becomes a liquid.

Describe the arrangement of the particles in liquid krypton.  
Give your answer in terms of particle separation and motion.

particle separation .....

.....

particle motion .....

.....

[2]

[Total: 6]

1 - (0971/31\_Summer\_2020\_Q4 )

|          |                                                                                                     |          |
|----------|-----------------------------------------------------------------------------------------------------|----------|
| (a)(i)   | values between $-46^{\circ}\text{C}$ and $29^{\circ}\text{C}$ (inclusive)                           | <b>1</b> |
| (a)(ii)  | increases as the number of carbon atoms increases / increases as the alkenes get bigger (or longer) | <b>1</b> |
| (a)(iii) | they are gases (at room temperature and pressure)                                                   | <b>1</b> |
| (b)(i)   | 9 ( $\text{O}_2$ )                                                                                  | <b>1</b> |
| (b)(ii)  | limewater / aqueous calcium hydroxide<br>turns milky / turns cloudy / white precipitate             | <b>2</b> |
| (b)(iii) | (green to) yellow<br>carbon dioxide is an acidic oxide                                              | <b>2</b> |
| (c)(i)   | (combustion in) limited oxygen                                                                      | <b>1</b> |
| (c)(ii)  | poisonous / toxic                                                                                   | <b>1</b> |

2 - (0971/31\_Summer\_2022\_Q5 )

|          |                                                                                                                                                                                                             |          |
|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| (a)      | A: freezing (1)<br>B: boiling (1)                                                                                                                                                                           | <b>2</b> |
| (b)      | <b>separation:</b><br>liquid: close together / some touching (1)<br><br>gas: far apart (1)<br><br><b>motion:</b><br>liquid: sliding over each other / restricted movement (1)<br><br>gas: moving freely (1) | <b>4</b> |
| (c)      | lead oxide has lost oxygen                                                                                                                                                                                  | <b>1</b> |
| (d)(i)   | (leaded) petrol / paints                                                                                                                                                                                    | <b>1</b> |
| (d)(ii)  | poisonous / toxic / harms nerves / harms brain                                                                                                                                                              | <b>1</b> |
| (e)(i)   | giant                                                                                                                                                                                                       | <b>1</b> |
| (e)(ii)  | covalent                                                                                                                                                                                                    | <b>1</b> |
| (e)(iii) | cutting tools / for cutting / drill tips / jewellery                                                                                                                                                        | <b>1</b> |
| (e)(iv)  | 2,4                                                                                                                                                                                                         | <b>1</b> |

3 - (0971/32\_Winter\_2022\_Q7)

|          |                                                                                                                                           |   |
|----------|-------------------------------------------------------------------------------------------------------------------------------------------|---|
| (a)(i)   | carboxylic acid                                                                                                                           | 1 |
| (a)(ii)  | $C_5H_{10}O_2$                                                                                                                            | 1 |
| (b)(i)   | (substance that) speeds up a reaction / (substance that) increases the rate of a reaction / (substance that) makes the reaction go faster | 1 |
| (b)(ii)  | fermentation                                                                                                                              | 1 |
| (c)(i)   | $  \begin{array}{cc}  H & H \\    &   \\  C & = & C \\    &   \\  H & H  \end{array}  $                                                   | 1 |
| (c)(ii)  | far apart                                                                                                                                 | 1 |
| (c)(iii) | to produce more needed products / to produce products in greater demand                                                                   | 1 |
| (c)(iv)  | poly(ethene)                                                                                                                              | 1 |
| (d)      | clothing                                                                                                                                  | 1 |
| (e)      | protein                                                                                                                                   | 1 |

4 - (0971/31\_Summer\_2023\_Q2 )

|          |                                                                                             |          |
|----------|---------------------------------------------------------------------------------------------|----------|
| (a)(i)   | values between $-100^{\circ}\text{C}$ and $+58^{\circ}\text{C}$ (inclusive of these values) | <b>1</b> |
| (a)(ii)  | values between 3.20 and 10.0 (inclusive of these values)                                    | <b>1</b> |
| (a)(iii) | gas                                                                                         | <b>1</b> |
|          | $-10^{\circ}\text{C}$ is above the boiling point                                            | <b>1</b> |
| (b)(i)   | displacement                                                                                | <b>1</b> |
| (b)(ii)  | chlorine is more reactive than iodine / iodine is less reactive than chlorine               | <b>1</b> |
| (c)      | configuration as 2,8,7                                                                      | <b>1</b> |
| (d)      | damp litmus paper (1)<br>bleaches (1)                                                       | <b>2</b> |

5 - (0971/32\_Summer\_2023\_Q6 )

|          |                                       |          |
|----------|---------------------------------------|----------|
| (a)(i)   | medium<br>small<br>large              | <b>1</b> |
| (a)(ii)  | takes shorter time / less time taken  | <b>1</b> |
| (a)(iii) | takes longer time / more time taken   | <b>1</b> |
| (b)      | filtration                            | <b>1</b> |
| (c)      | 3rd box down ticked (silver chloride) | <b>1</b> |

6 - (0971/32\_Winter\_2023\_Q2 )

|          |                                                                                                                                                                                                                                                                                                                           |          |
|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| (a)      | one mark each for any two of:<br><ul style="list-style-type: none"> <li>• does not have a fixed composition</li> <li>• the properties of a mixture are those of the substances present</li> <li>• can be separated (into its components by physical means)</li> <li>• (components) are not chemically combined</li> </ul> | <b>2</b> |
| (b)(i)   | X in lowest section of the column / X in the tube where bitumen collects                                                                                                                                                                                                                                                  | <b>1</b> |
| (b)(ii)  | naphtha                                                                                                                                                                                                                                                                                                                   | <b>1</b> |
| (b)(iii) | bitumen                                                                                                                                                                                                                                                                                                                   | <b>1</b> |
| (b)(iv)  | fuel for ships / fuel for home heating                                                                                                                                                                                                                                                                                    | <b>1</b> |

7 - (0971/32\_Winter\_2023\_Q4)

|     |                                                                                                                                                                                                                                                                 |          |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| (a) | one mark each for any two of: <ul style="list-style-type: none"> <li>• has a definite shape / does not take the shape of the container</li> <li>• has a definite volume / fixed volume</li> <li>• does not spread over surface / does not flow</li> </ul>       | <b>2</b> |
| (b) | A: melting (1)<br><br>B: condensing / condensation (1)                                                                                                                                                                                                          | <b>2</b> |
| (c) | <i>solid tin</i><br><i>separation:</i> touching / close together (1)<br><br><i>motion:</i> vibrating (1)<br><br><i>liquid tin</i><br><i>separation:</i> close together (1)<br><br><i>motion:</i> sliding (over each other) <b>OR</b> moving over each other (1) | <b>4</b> |
| (d) | (volume) decreases                                                                                                                                                                                                                                              | <b>1</b> |

8 - (0971/32\_Winter\_2023\_Q8)

|          |                                                                                                                                     |          |
|----------|-------------------------------------------------------------------------------------------------------------------------------------|----------|
| (a)      | high melting point / high boiling point                                                                                             | <b>1</b> |
| (b)      | 2,8,8 configuration <b>AND</b> no other shells added (1)<br>– / 1– charge outside brackets (1)                                      | <b>2</b> |
| (c)(i)   | <i>protons</i> : 30 (1)<br><i>electrons</i> : 37 (1)                                                                                | <b>2</b> |
| (c)(ii)  | cations                                                                                                                             | <b>1</b> |
| (d)      | <i>negative electrode</i> : zinc (1)<br><i>positive electrode</i> : chlorine (1)<br><i>observations</i> : (yellow-)green vapour (1) | <b>3</b> |
| (e)(i)   | inert / unreactive                                                                                                                  | <b>1</b> |
| (e)(ii)  | giant covalent                                                                                                                      | <b>1</b> |
| (e)(iii) | lubricant                                                                                                                           | <b>1</b> |

9 - (0971/32\_Winter\_2024\_Q8 )

|          |                                                                                                |          |
|----------|------------------------------------------------------------------------------------------------|----------|
| (a)(i)   | 1.0<br>0.5<br>2.0                                                                              | <b>1</b> |
| (a)(ii)  | longer time / increases time / more time                                                       | <b>1</b> |
| (a)(iii) | shorter time / decreases time / less time                                                      | <b>1</b> |
| (b)(i)   | <i>positive electrode:</i> chlorine (1)<br><i>negative electrode:</i> calcium (1)              | <b>2</b> |
| (b)(ii)  | graphite                                                                                       | <b>1</b> |
| (c)      | <i>motion:</i><br>irregular / no pattern (1)<br><br><i>separation:</i><br><b>far</b> apart (1) | <b>2</b> |

10 - (0971/31\_Summer\_2025\_Q7)

|          |                                                                           |          |
|----------|---------------------------------------------------------------------------|----------|
| (a)(i)   | (experiment) 2                                                            | <b>1</b> |
| (a)(ii)  | <b>2</b> (HCl)                                                            | <b>1</b> |
|          | H <sub>2</sub>                                                            | <b>1</b> |
| (a)(iii) | energy (on the y-axis)                                                    | <b>1</b> |
|          | reactants (on left hand line and)<br>AND<br>products (on right hand line) | <b>1</b> |
| (b)      | <b>G</b> – evaporation                                                    | <b>1</b> |
|          | <b>H</b> – freezing                                                       | <b>1</b> |

11 - (0971/32\_Winter\_2025\_Q2)

|                          |                                                                                                                                                                                                      |                     |                                 |                          |           |                       |           |   |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|---------------------------------|--------------------------|-----------|-----------------------|-----------|---|
| (a)                      | <table><tr><td>number of electrons</td><td>36</td></tr><tr><td>number of neutrons</td><td>48</td></tr></table>                                                                                       | number of electrons | 36                              | number of neutrons       | 48        | 2                     |           |   |
| number of electrons      | 36                                                                                                                                                                                                   |                     |                                 |                          |           |                       |           |   |
| number of neutrons       | 48                                                                                                                                                                                                   |                     |                                 |                          |           |                       |           |   |
| (b)                      | <table><tr><td>change</td><td>effect on the volume of krypton</td></tr><tr><td>temperature is decreased</td><td>decreases</td></tr><tr><td>pressure is increased</td><td>decreases</td></tr></table> | change              | effect on the volume of krypton | temperature is decreased | decreases | pressure is increased | decreases | 2 |
| change                   | effect on the volume of krypton                                                                                                                                                                      |                     |                                 |                          |           |                       |           |   |
| temperature is decreased | decreases                                                                                                                                                                                            |                     |                                 |                          |           |                       |           |   |
| pressure is increased    | decreases                                                                                                                                                                                            |                     |                                 |                          |           |                       |           |   |
| (c)                      | separation: close together / touching / packed / not separated (1)<br><br>motion: sliding over each other / random (1)                                                                               | 2                   |                                 |                          |           |                       |           |   |

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