

# IGCSE Chemistry (0620) Paper 1

[Core | Multiple Choice Questions]

---

Exam Series: February/March 2017 – May/June 2025

**Format Type A:**  
Answers to all questions are provided as an appendix





# Introduction

Each Topical Past Paper Questions Compilation contains a comprehensive collection of hundreds of questions and corresponding answer schemes, presented in worksheet format. The questions are carefully arranged according to their respective chapters and topics, which align with the latest IGCSE or AS/A Level subject content. Here are the key features of these resources:

1. The workbook covers a wide range of topics, which are organized according to the latest syllabus content for Cambridge IGCSE or AS/A Level exams.
2. Each topic includes numerous questions, allowing students to practice and reinforce their understanding of key concepts and skills.
3. The questions are accompanied by detailed answer schemes, which provide clear explanations and guidance for students to improve their performance.
4. The workbook's format is user-friendly, with worksheets that are easy to read and navigate.
5. This workbook is an ideal resource for students who want to familiarize themselves with the types of questions that may appear in their exams and to develop their problem-solving and analytical skills.

Overall, Topical Past Paper Questions Workbooks are a valuable tool for students preparing for IGCSE or AS/A level exams, providing them with the opportunity to practice and refine their knowledge and skills in a structured and comprehensive manner. To provide a clearer description of this book's specifications, here are some key details:

- Title: Cambridge IGCSE Chemistry (0620) Paper 1 Topical Past Papers
- Subtitle: Exam Practice Worksheets With Answer Scheme
- Examination board: Cambridge Assessment International Education (CAIE)
- Subject code: 0620
- Years covered: February/March 2017 – May/June 2025
- Paper: 1
- Number of pages: 845
- Number of questions: 2100



# Contents

<b>1 States of matter</b>	<b>7</b>
1.1 Solids, liquids and gases . . . . .	7
1.2 Diffusion . . . . .	36
<b>2 Atoms, elements and compounds</b>	<b>39</b>
2.1 Elements, compounds and mixtures . . . . .	39
2.2 Atomic structure and the Periodic Table . . . . .	45
2.3 Isotopes . . . . .	62
2.4 Ions and ionic bonds . . . . .	71
2.5 Simple molecules and covalent bonds . . . . .	92
2.6 Giant covalent structures . . . . .	103
2.7 Metallic bonding . . . . .	117
<b>3 Stoichiometry</b>	<b>119</b>
3.1 Formulae . . . . .	119
3.2 Relative masses of atoms and molecules . . . . .	132
3.3 The mole and the Avogadro constant . . . . .	146
<b>4 Electrochemistry</b>	<b>147</b>
4.1 Electrolysis . . . . .	147
4.2 Hydrogen–oxygen fuel cells . . . . .	177
<b>5 Chemical energetics</b>	<b>187</b>
5.1 Exothermic and endothermic reactions . . . . .	187
<b>6 Chemical reactions</b>	<b>223</b>
6.1 Physical and chemical changes . . . . .	223
6.2 Rate of reaction . . . . .	235
6.3 Reversible reactions and equilibrium . . . . .	270
6.4 Redox . . . . .	284
<b>7 Acids, bases and salts</b>	<b>303</b>
7.1 The characteristic properties of acids and bases . . . . .	303
7.2 Oxides . . . . .	325
7.3 Preparation of salts . . . . .	345
<b>8 The Periodic Table</b>	<b>377</b>
8.1 Arrangement of elements . . . . .	377
8.2 Group I properties . . . . .	399
8.3 Group VII properties . . . . .	412
8.4 Transition elements . . . . .	426
8.5 Noble gases . . . . .	441

<b>9 Metals</b>	<b>455</b>
9.1 Properties of metals . . . . .	455
9.2 Uses of metals . . . . .	463
9.3 Alloys and their properties . . . . .	477
9.4 Reactivity series . . . . .	491
9.5 Corrosion of metals . . . . .	523
9.6 Extraction of metals . . . . .	537
<b>10 Chemistry of the environment</b>	<b>563</b>
10.1 Water . . . . .	563
10.2 Fertilisers . . . . .	577
10.3 Air quality and climate . . . . .	590
<b>11 Organic chemistry</b>	<b>627</b>
11.1 Formulae, functional groups and terminology . . . . .	627
11.2 Naming organic compounds . . . . .	650
11.3 Fuels . . . . .	653
11.4 Alkanes . . . . .	679
11.5 Alkenes . . . . .	685
11.6 Alcohols . . . . .	696
11.7 Carboxylic acids . . . . .	712
11.8 Polymers . . . . .	726
<b>12 Experimental techniques and chemical analysis</b>	<b>745</b>
12.1 Experimental design . . . . .	745
12.2 Acid–base titrations . . . . .	764
12.3 Chromatography . . . . .	765
12.4 Separation and purification . . . . .	776
12.5 Identification of ions and gases . . . . .	799
<b>A Answers</b>	<b>823</b>

# Chapter 1

## States of matter

### 1.1 Solids, liquids and gases

1. 0620\_m25\_qp\_12 Q: 1

Substance L takes the shape of the container that holds it.

What could be the state of matter of substance L?

- A liquid or gas
- B gas or solid
- C solid or liquid
- D solid only

---

compiled by examinent.com

---

2. 0620\_m25\_qp\_12 Q: 2

The melting points and boiling points of pure substances M, N and O are shown.

	M	N	O
melting point/°C	-114	115	-101
boiling point/°C	78	445	-34

The substances are chlorine, ethanol and sulfur.

Which row identifies M, N and O?

	M	N	O
A	chlorine	ethanol	sulfur
B	ethanol	sulfur	chlorine
C	sulfur	chlorine	ethanol
D	sulfur	ethanol	chlorine

Which statement explains why the noble gases are unreactive?

- A They are in the same group of the Periodic Table.
- B They are gases at room temperature.
- C They each have a full outer electron shell.
- D They are found in air.

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

3. 0620\_s25\_qp\_11 Q: 1

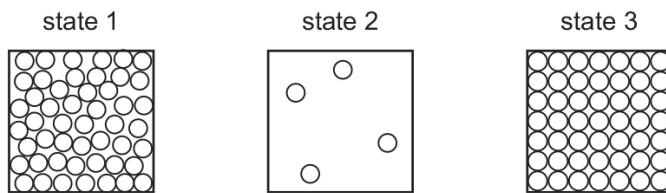
Which process happens when water vapour changes to rain?

- A boiling
- B condensing
- C evaporating
- D freezing

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

4. 0620\_s25\_qp\_11 Q: 2

The diagrams show the arrangement of particles in three different states of matter.



Which row describes the change in energy of the particles and in particle motion for the given change in state?

	change in state	energy of particles	particle motion
<b>A</b>	1 → 2	decreases	decreases
<b>B</b>	2 → 1	decreases	increases
<b>C</b>	3 → 1	increases	increases
<b>D</b>	1 → 3	increases	decreases

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

5. 0620\_s25\_qp\_12 Q: 1

Substance L melts at  $-7^{\circ}\text{C}$  and is a brown liquid at room temperature.

What is the boiling point of pure L?

- A**  $-77^{\circ}\text{C}$
- B**  $-7^{\circ}\text{C}$  to  $+7^{\circ}\text{C}$
- C**  $59^{\circ}\text{C}$
- D**  $107^{\circ}\text{C}$  to  $117^{\circ}\text{C}$

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

6. 0620\_s25\_qp\_12 Q: 2

Which row describes how the volume of a gas changes when its temperature is increased at constant pressure and when its pressure is increased at constant temperature?

	temperature is increased at constant pressure	pressure is increased at constant temperature
<b>A</b>	volume decreases	volume decreases
<b>B</b>	volume decreases	volume increases
<b>C</b>	volume increases	volume decreases
<b>D</b>	volume increases	volume increases

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

7. 0620\_s25\_qp\_13 Q: 1

Liquid iron is cooled to form solid iron.

Which statement about the particles in iron is correct?

- A** The particles move further apart.
- B** The particles move faster.
- C** The position of the particles becomes fixed.
- D** The attractions between the particles become weaker.

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

8. 0620\_m24\_qp\_12 Q: 1

Which statement about a solid, a liquid or a gas is correct?

- A** A solid has a fixed shape and can be compressed.
- B** A liquid takes the shape of the container it is in and can be compressed.
- C** A solid has no fixed shape and cannot be compressed.
- D** A gas takes the shape of the container it is in and can be compressed.

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

9. 0620\_s24\_qp\_11 Q: 1

The boiling point of sodium is 890 °C.

What happens to sodium atoms as the temperature of a sample of sodium changes from 950 °C to 900 °C?

- A The atoms move more quickly and bonds are formed.
- B The atoms move more quickly and bonds are neither broken nor formed.
- C The atoms move more slowly and bonds are formed.
- D The atoms move more slowly and bonds are neither broken nor formed.

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

10. 0620\_s24\_qp\_11 Q: 2

Which row shows the conditions for the particles of a gas colliding most frequently?

	pressure	temperature
A	high	high
B	high	low
C	low	high
D	low	low

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

11. 0620\_s24\_qp\_12 Q: 1

Which statement about gases is correct?

- A Gases are difficult to compress when pressure is applied.
- B The particles in gases are close together.
- C The particles in gases have a random arrangement.
- D The particles in gases move slowly past each other.

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

12. 0620\_s24\_qp\_12 Q: 2

A sample of argon gas is heated in a closed container.

Which row describes what happens to the pressure and the size of the argon atoms?

	pressure	size
<b>A</b>	decreases	increases
<b>B</b>	decreases	stays the same
<b>C</b>	increases	increases
<b>D</b>	increases	stays the same

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

13. 0620\_s24\_qp\_13 Q: 1

Which two processes are required to change ice into steam?

- A** boiling and melting
- B** boiling and freezing
- C** condensing and melting
- D** condensing and freezing

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

14. 0620\_s24\_qp\_13 Q: 2

Which row describes how the volume of a gas changes when the temperature increases, or when the pressure increases?

	temperature increases	pressure increases
<b>A</b>	volume decreases	volume decreases
<b>B</b>	volume decreases	volume increases
<b>C</b>	volume increases	volume decreases
<b>D</b>	volume increases	volume increases

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

15. 0620\_w24\_qp\_11 Q: 1

The table shows the melting and boiling points of four elements.

Which element is a gas at room temperature and pressure?

	melting point/°C	boiling point/°C
A	-101	-35
B	-7	59
C	10	100
D	113	445

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

16. 0620\_w24\_qp\_11 Q: 2

Four statements about the arrangement or movement of particles are given.

- 1 Particles are packed in a regular arrangement.
- 2 Particles are randomly arranged.
- 3 Particles move over each other.
- 4 Particles vibrate about fixed points.

Which statements describe the particles in a pure solid?

A 1 and 3      B 1 and 4      C 2 and 3      D 2 and 4

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

17. 0620\_w24\_qp\_12 Q: 1

The table shows some information about the three states of matter.

	particle separation	particle arrangement	type of motion
1	touching with some particles having spaces between them	random	slide past each other at low speed
2	particles are far apart	random	rapid motion in straight lines
3	touching with very little space between the particles	regular	vibration only

Which row is correct?

	1	2	3
A	gas	liquid	solid
B	liquid	solid	gas
C	liquid	gas	solid
D	solid	gas	liquid

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

18. 0620\_w24\_qp\_12 Q: 2

Which arrow represents evaporation?



\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

19. 0620\_w24\_qp\_13 Q: 1

Which conditions cause gas particles to move the fastest and the furthest apart?

	temperature	pressure
A	high	high
B	low	high
C	high	low
D	low	low

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

20. 0620\_w24\_qp\_13 Q: 2

Which statement describes a liquid at room temperature?

- A A sample of a liquid has a fixed volume and shape.
- B A sample of a liquid does **not** have a fixed volume or shape.
- C The particles are touching but can move by sliding over each other.
- D The particles spread out and fill all available space.

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

21. 0620\_w24\_qp\_13 Q: 3

A compound, X, has a melting point of  $71^{\circ}\text{C}$  and a boiling point of  $375^{\circ}\text{C}$ .

Which statement about X is correct?

- A It is a liquid at  $52^{\circ}\text{C}$  and a gas at  $175^{\circ}\text{C}$ .
- B It is a liquid at  $69^{\circ}\text{C}$  and a gas at  $380^{\circ}\text{C}$ .
- C It is a liquid at  $75^{\circ}\text{C}$  and a gas at  $350^{\circ}\text{C}$ .
- D It is a liquid at  $80^{\circ}\text{C}$  and a gas at  $400^{\circ}\text{C}$ .

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

22. 0620\_m23\_qp\_12 Q: 1

The arrangements of particles in solids, liquids and gases are different.

Which statement about the molecules in ice, water or steam is correct?

- A The  $\text{H}_2\text{O}$  molecules are on average closest together in steam.
- B The  $\text{H}_2\text{O}$  molecules are on average furthest apart in water.
- C The  $\text{H}_2\text{O}$  molecules in steam have the second highest average velocity.
- D The  $\text{H}_2\text{O}$  molecules in ice are able to vibrate.

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

23. 0620\_m23\_qp\_12 Q: 2

The melting points and boiling points of three elements, at 1 atm pressure, are shown.

	melting point /°C	boiling point /°C
argon	-189	-186
nitrogen	-210	-196
oxygen	-218	-183

Separate samples of argon, nitrogen and oxygen are stored at -200 °C and at 1 atm pressure.

How many samples are liquids?

**A** 0      **B** 1      **C** 2      **D** 3

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

24. 0620\_s23\_qp\_12 Q: 1

Four physical changes of ethanol are listed.

- 1 condensation
- 2 evaporation
- 3 freezing
- 4 boiling

In which changes do the particles move further apart?

**A** 1 and 2      **B** 1 and 3      **C** 2 and 4      **D** 3 and 4

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

25. 0620\_s23\_qp\_13 Q: 1

Nitrogen is heated in a balloon, which expands slightly.

Which statements about the molecules of nitrogen are correct?

- 1 They move further apart.
- 2 They move more quickly.
- 3 They remain the same distance apart.
- 4 Their speed remains unchanged.

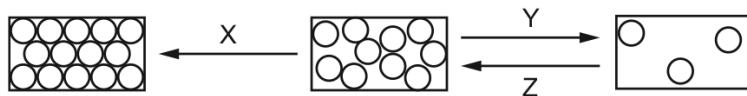
**A** 1 and 2      **B** 1 and 4      **C** 2 and 3      **D** 3 and 4

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

26. 0620\_w23\_qp\_11 Q: 1

The three rectangles show the arrangements of the particles in each of the three states of matter.

X, Y and Z represent the processes needed to change from one state to another.



What are the processes X, Y and Z?

	X	Y	Z
<b>A</b>	melting	condensing	evaporating
<b>B</b>	evaporating	melting	freezing
<b>C</b>	melting	freezing	condensing
<b>D</b>	freezing	evaporating	condensing

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

27. 0620\_w23\_qp\_12 Q: 1

The melting points and boiling points of four elements are shown.

element	melting point/°C	boiling point/°C
W	-7	60
X	-101	-34
Y	114	184
Z	39	688

In which elements do the particles vibrate about fixed positions at 0 °C?

**A** W and X      **B** W and Z      **C** X and Y      **D** Y and Z

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

28. 0620\_w23\_qp\_13 Q: 1

Which statement about solids, liquids or gases is correct?

**A** Solids are easy to compress.  
**B** Liquids are easy to compress.  
**C** Liquids expand to fill their container.  
**D** Gases expand to fill their container.

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

29. 0620\_m22\_qp\_12 Q: 1

Which change of state is an exothermic process?

- A condensation
- B evaporation
- C melting
- D sublimation

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

30. 0620\_m22\_qp\_12 Q: 2

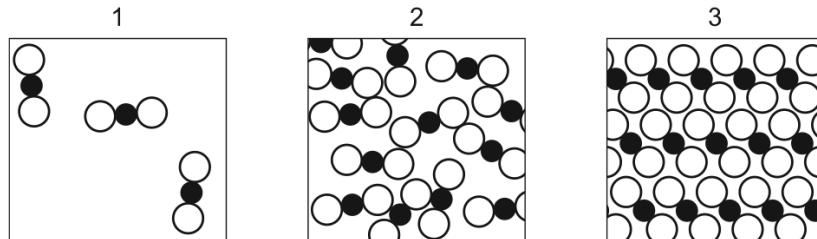
In which state does  $1\text{ dm}^3$  of methane contain the most particles?

- A gas at  $100^\circ\text{C}$
- B gas at room temperature
- C liquid
- D solid

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

31. 0620\_s22\_qp\_11 Q: 1

Diagrams of the three states of matter for carbon dioxide are shown.



Which two diagrams show the states of matter before and after the sublimation of carbon dioxide?

- A 2 to 1
- B 2 to 3
- C 3 to 1
- D 3 to 2

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

32. 0620\_s22\_qp\_12 Q: 1

Substances change state when their temperature is changed.

Which changes of state take place when the temperature of a substance is lowered?

- 1 boiling
- 2 condensation
- 3 freezing
- 4 melting

**A** 1 and 4      **B** 2, 3 and 4      **C** 2 and 3 only      **D** 3 only

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

33. 0620\_s22\_qp\_13 Q: 1

Two different physical states of iodine are described.

In state 1, iodine exists as  $I_2$  molecules that are widely spaced and in rapid random movement.

In state 2, iodine exists as  $I_2$  molecules that are closely packed and only vibrate.

Iodine can be converted directly from state 2 to form state 1.

Which row about state 2 and the change from state 2 to state 1 is correct?

	state 2	the change from state 2 to state 1
<b>A</b>	liquid	evaporation
<b>B</b>	liquid	sublimation
<b>C</b>	solid	evaporation
<b>D</b>	solid	sublimation

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

34. 0620\_w22\_qp\_11 Q: 1

Which row describes the spacing and arrangement of particles in a solid, a liquid and a gas?

	solid	liquid	gas
<b>A</b>	close together and randomly arranged	close together and regularly arranged	far apart and randomly arranged
<b>B</b>	close together and randomly arranged	far apart and randomly arranged	close together and randomly arranged
<b>C</b>	close together and regularly arranged	close together and randomly arranged	far apart and randomly arranged
<b>D</b>	close together and regularly arranged	close together and regularly arranged	close together and randomly arranged

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

35. 0620\_w22\_qp\_12 Q: 1

Which statement describes the particles in a liquid?

- A** They are close together but have no regular arrangement.
- B** They are densely packed in a regular order.
- C** They move freely at high speed and are widely spaced.
- D** They vibrate but do not move from a fixed position.

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

36. 0620\_w22\_qp\_13 Q: 1

Which row describes the separation and motion of particles in a gas?

	separation of particles	motion of particles
<b>A</b>	close together	slow movement
<b>B</b>	close together	fast movement
<b>C</b>	widely spaced	slow movement
<b>D</b>	widely spaced	fast movement

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

37. 0620\_m21\_qp\_12 Q: 1

In which changes do the particles move further apart?



**A** W and X      **B** W and Z      **C** X and Y      **D** Y and Z

compiled by examinent.com

38. 0620\_m21\_qp\_12 Q: 2

Gases are separated from liquid air by fractional distillation.

The boiling points of four gases are shown.

Which gas is both monoatomic and a liquid at  $-200^{\circ}\text{C}$ ?

	gas	boiling point/ $^{\circ}\text{C}$
<b>A</b>	argon	$-186$
<b>B</b>	helium	$-269$
<b>C</b>	neon	$-246$
<b>D</b>	nitrogen	$-196$

compiled by examinent.com

39. 0620\_s21\_qp\_11 Q: 1

Which row describes the arrangement and movement of particles in a liquid?

	arrangement of particles	movement of particles
<b>A</b>	touching and regular	vibrating
<b>B</b>	touching and random	moving around each other
<b>C</b>	touching and regular	moving around each other
<b>D</b>	touching and random	moving very fast

compiled by examinent.com

40. 0620\_s21\_qp\_12 Q: 1

Iodine changes directly from a grey solid to a purple gas when it is heated.

What is the name of this process?

- A condensation
- B evaporation
- C separation
- D sublimation

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

41. 0620\_s21\_qp\_13 Q: 1

A  $1\text{ cm}^3$  sample of substance X is taken. This is sample 1.

X is then converted to a different physical state and a  $1\text{ cm}^3$  sample is taken. This is sample 2.

Sample 2 contains more particles in the  $1\text{ cm}^3$  than sample 1.

Which process caused this increase in the number of particles in  $1\text{ cm}^3$ ?

- A boiling of liquid X
- B condensation of gaseous X
- C evaporation of liquid X
- D sublimation of solid X

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

42. 0620\_w21\_qp\_11 Q: 1

Decane has a freezing point of  $-30^\circ\text{C}$  and a boiling point of  $174^\circ\text{C}$ .

A small sample of decane is placed in an open beaker in an oven at a temperature of  $120^\circ\text{C}$  and at atmospheric pressure for 24 hours.

What happens to the sample of decane?

- A It boils.
- B It evaporates.
- C It melts.
- D It sublimes.

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

43. 0620\_w21\_qp\_12 Q: 1

Which row describes what happens to the particles in solid iodine when it is heated and turned into a gas?

	separation of particles	speed of particles
<b>A</b>	closer together	faster
<b>B</b>	closer together	slower
<b>C</b>	further apart	faster
<b>D</b>	further apart	slower

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

44. 0620\_w21\_qp\_13 Q: 1

The particles in a substance are far apart, randomly arranged and moving.

The substance changes state and the particles are now close together. The particles are still randomly arranged and able to move.

What is the change of state of the substance?

- A** gas to liquid
- B** liquid to gas
- C** liquid to solid
- D** solid to gas

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

45. 0620\_m20\_qp\_12 Q: 1

Which row represents the particles of a gas colliding most frequently?

	pressure	temperature
<b>A</b>	high	high
<b>B</b>	high	low
<b>C</b>	low	high
<b>D</b>	low	low

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

46. 0620\_s20\_qp\_11 Q: 1

Nitrogen is heated in a balloon, which expands slightly.

Which statements about the molecules of nitrogen are correct?

- 1 They move further apart.
- 2 They move more quickly.
- 3 They remain the same distance apart.
- 4 Their speed remains unchanged.

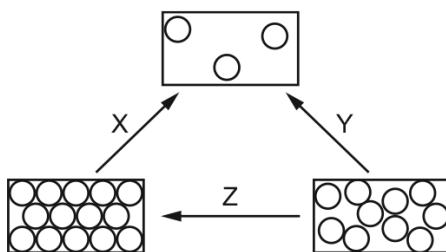
**A** 1 and 2      **B** 1 and 4      **C** 2 and 3      **D** 3 and 4

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

47. 0620\_s20\_qp\_12 Q: 1

Each rectangle shows the arrangement of particles in each of the three states of matter.

X, Y and Z represent the processes needed to change from one state to another.



What are the processes X, Y and Z?

	X	Y	Z
<b>A</b>	evaporating	subliming	condensing
<b>B</b>	evaporating	subliming	freezing
<b>C</b>	subliming	evaporating	condensing
<b>D</b>	subliming	evaporating	freezing

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

48. 0620\_s20\_qp\_13 Q: 1

Descriptions of the three states of matter are shown.

	particle separation	particle arrangement	type of motion
1	small	random	move past each other at low speed
2	large	random	rapid motion in straight lines
3	small	regular	vibration

Which row is correct?

	1	2	3
A	gas	liquid	solid
B	liquid	solid	gas
C	liquid	gas	solid
D	solid	gas	liquid

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

49. 0620\_w20\_qp\_11 Q: 1

'The movement of a substance **very slowly** from an area of high concentration to an area of low concentration.'

Which process is being described?

- A a liquid being frozen
- B a solid melting
- C a substance diffusing through a liquid
- D a substance diffusing through the air

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

50. 0620\_w20\_qp\_11 Q: 2

What happens to the average speed of gas particles when pressure and temperature are increased?

	average speed of particles	
	pressure increases	temperature increases
A	faster	faster
B	unchanged	slower
C	slower	faster
D	unchanged	faster

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

51. 0620\_w20\_qp\_12 Q: 2

Oxygen melts at  $-219^{\circ}\text{C}$  and boils at  $-183^{\circ}\text{C}$ .

At which temperature is oxygen a liquid?

**A**  $-225^{\circ}\text{C}$       **B**  $-189^{\circ}\text{C}$       **C**  $-175^{\circ}\text{C}$       **D**  $25^{\circ}\text{C}$

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

52. 0620\_w20\_qp\_13 Q: 2

When a dark grey solid element is heated, it changes directly into a purple gas.

Which word describes this change?

**A** boiling  
**B** evaporation  
**C** melting  
**D** sublimation

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

53. 0620\_m19\_qp\_12 Q: 1

Four processes are listed.

- 1 Brownian motion
- 2 condensation
- 3 diffusion
- 4 evaporation

Which processes involve a change of state?

**A** 1 and 2      **B** 1 and 3      **C** 2 and 4      **D** 3 and 4

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

54. 0620\_s19\_qp\_11 Q: 1

Sodium chloride is a liquid at 900 °C.

How are the particles arranged and how do the particles move in sodium chloride at 900 °C?

	arrangement of particles	motion of particles
<b>A</b>	regular	vibrate about a fixed point
<b>B</b>	regular	move randomly
<b>C</b>	random	vibrate about a fixed point
<b>D</b>	random	move randomly

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

55. 0620\_s19\_qp\_12 Q: 1

Which row describes the arrangement and motion of particles in a solid?

	arrangement	motion
<b>A</b>	random	move in all directions
<b>B</b>	random	stay in one place
<b>C</b>	regular	move freely
<b>D</b>	regular	vibrate about a fixed point

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

56. 0620\_s19\_qp\_13 Q: 1

Which row describes the arrangement and motion of the particles in a liquid?

	arrangement	motion
<b>A</b>	irregular and most particles touching	moving slowly
<b>B</b>	irregular spaces between all particles	moving slowly
<b>C</b>	regular and most particles touching	moving slowly
<b>D</b>	regular spaces between all particles	moving quickly

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

57. 0620\_w19\_qp\_11 Q: 1

The diagram shows a cup of hot tea.



Which row describes the water particles in the air above the cup compared with the water particles in the cup?

	moving faster	closer together
<b>A</b>	✓	✗
<b>B</b>	✓	✓
<b>C</b>	✗	✗
<b>D</b>	✗	✓

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

58. 0620\_m18\_qp\_12 Q: 1

Four physical changes are listed.

- 1 condensation
- 2 evaporation
- 3 freezing
- 4 sublimation

In which changes do the particles move further apart?

**A** 1 and 2      **B** 1 and 3      **C** 2 and 4      **D** 3 and 4

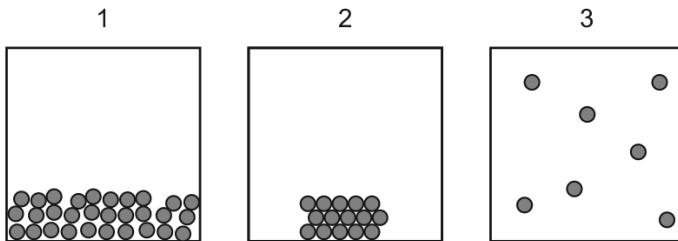
---

 compiled by examinent.com 

---

59. 0620\_s18\_qp\_11 Q: 1

The diagrams show particles in a container.



Which two diagrams show the process of evaporation?

**A** 1 → 2      **B** 1 → 3      **C** 2 → 3      **D** 3 → 1

---

 compiled by examinent.com 

---

60. 0620\_s18\_qp\_12 Q: 1

When iodine is heated it turns from a solid to a gas.

When liquid ammonia is cooled it turns into a solid.

When ice is heated it turns into water.

Which terms describe these changes of state?

	when iodine is heated	when liquid ammonia is cooled	when ice is heated
<b>A</b>	boiling	freezing	melting
<b>B</b>	freezing	sublimation	boiling
<b>C</b>	sublimation	condensation	freezing
<b>D</b>	sublimation	freezing	melting

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

61. 0620\_w18\_qp\_11 Q: 1

A beaker containing solid carbon dioxide is placed in a fume cupboard at room temperature. The carbon dioxide becomes gaseous.

Which process describes this change of state?

- A** boiling
- B** condensation
- C** evaporation
- D** sublimation

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

62. 0620\_w18\_qp\_11 Q: 2

The pressure of a sample of gas is decreased. The temperature is kept constant.

Which row describes the effects on the particles?

	movement of particles	collisions between particles
<b>A</b>	slower	occur less often
<b>B</b>	slower	occur with more force
<b>C</b>	no change in speed	occur less often
<b>D</b>	no change in speed	occur with more force

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

63. 0620\_w18\_qp\_12 Q: 1

A gas is heated. The pressure is kept constant.

Which statement describes the behaviour of the particles in the gas?

- A** The particles move faster and become closer together.
- B** The particles move faster and become further apart.
- C** The particles move slower and become closer together.
- D** The particles move slower and become further apart.

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

64. 0620\_w18\_qp\_12 Q: 2

In which state does 1 dm<sup>3</sup> of methane contain the most particles?

- A** gas at 100 °C
- B** gas at room temperature
- C** liquid
- D** solid

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

65. 0620\_w18\_qp\_13 Q: 1

The statements describe two changes of state.

- 1 The molecules of substance X are arranged randomly.  
During the change of state, they lose energy and become more ordered. The molecules can still move freely.
- 2 The molecules of substance Y are arranged in a regular lattice.  
During the change of state, they gain energy and become less ordered. The molecules are still close together.

Which changes of state are described by the statements?

	1	2
A	condensation	evaporation
B	condensation	melting
C	freezing	evaporation
D	freezing	melting

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

66. 0620\_w18\_qp\_13 Q: 2

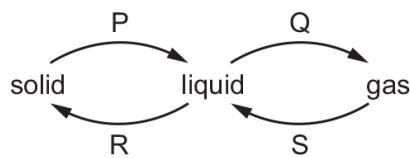
Which statement about gases is correct?

- A Gases are difficult to compress when pressure is applied.
- B The particles in gases are close together.
- C The particles in gases have a random arrangement.
- D The particles in gases move slowly past each other.

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

67. 0620\_s17\_qp\_11 Q: 1

The diagram shows some changes of state.



Which words describe the changes of state, P, Q, R and S?

	P	Q	R	S
A	freezing	boiling	melting	evaporation
B	melting	evaporation	freezing	condensation
C	melting	sublimation	freezing	evaporation
D	sublimation	evaporation	melting	condensation

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

68. 0620\_s17\_qp\_11 Q: 3

Pure water has a boiling point of 100 °C and a freezing point of 0 °C.

What is the boiling point and freezing point of a sample of aqueous sodium chloride?

	boiling point/ °C	freezing point/ °C
A	98	-2
B	98	2
C	102	-2
D	102	2

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

69. 0620\_s17\_qp\_12 Q: 1

Four statements about the arrangement of particles are given.

- 1 Particles are packed in a regular arrangement.
- 2 Particles are randomly arranged.
- 3 Particles move over each other.
- 4 Particles vibrate about fixed points.

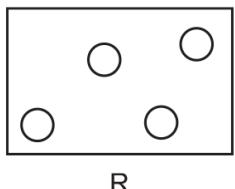
Which statements describe the particles in a solid?

**A** 1 and 3      **B** 1 and 4      **C** 2 and 3      **D** 2 and 4

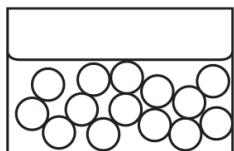
\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

70. 0620\_s17\_qp\_13 Q: 1

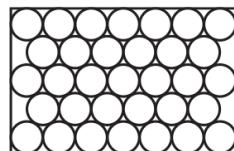
Diagrams R, S and T represent the three states of matter.



R



S



T

Which change occurs during freezing?

**A** R → S      **B** S → T      **C** T → R      **D** T → S

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

71. 0620\_s17\_qp\_13 Q: 3

A compound, X, has a melting point of 71 °C and a boiling point of 375 °C.

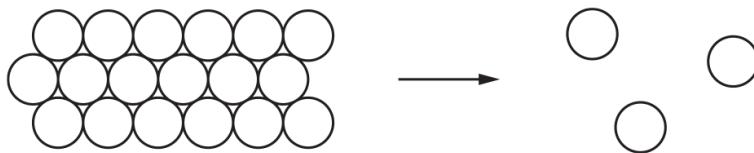
Which statement about X is correct?

- A** It is a liquid at 52 °C and a gas at 175 °C.
- B** It is a liquid at 69 °C and a gas at 380 °C.
- C** It is a liquid at 75 °C and a gas at 350 °C.
- D** It is a liquid at 80 °C and a gas at 400 °C.

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

72. 0620\_w17\_qp\_11 Q: 1

The diagram shows how the arrangement of particles changes when a substance changes state.



Which change of state is shown?

- A boiling
- B condensation
- C evaporation
- D sublimation

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

73. 0620\_w17\_qp\_12 Q: 1

The melting points and boiling points of four elements are shown.

element	melting point/°C	boiling point/°C
W	-7	60
X	-101	-34
Y	114	184
Z	39	688

In which elements do the particles vibrate about fixed positions at 0°C?

- A W and X
- B W and Z
- C X and Y
- D Y and Z

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

74. 0620\_w17\_qp\_13 Q: 1

Which statement about liquids and gases is correct?

- A 1 cm<sup>3</sup> of gas contains more particles than 1 cm<sup>3</sup> of liquid.
- B A given mass of liquid has a fixed volume at room temperature.
- C Particles in a liquid can easily be forced closer together.
- D Particles in a liquid have fixed positions.

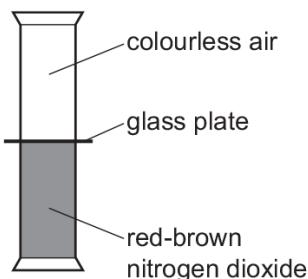
\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

## 1.2 Diffusion

75. 0620\_s25\_qp\_12 Q: 3

Nitrogen dioxide is a red-brown gas which is more dense than air.

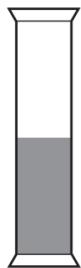
The diagram shows the arrangement of two gas jars which contain nitrogen dioxide and air separated with a glass plate.



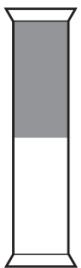
The glass plate is removed, and the gas jars are left for 24 hours.

Which diagram shows the gas jars after 24 hours?

**A**



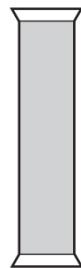
**B**



**C**



**D**



\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

76. 0620\_w24\_qp\_12 Q: 3

In which states of matter does diffusion occur readily?

- A** gases and liquids
- B** gases only
- C** liquids and solids
- D** solids only

\_\_\_\_\_ compiled by examinent.com \_\_\_\_\_

# Appendix A

## Answers

SN	Paper	Q. No.	Answer
1	0620_m25_qp_12	1	A
2	0620_m25_qp_12	2	B
3	0620_s25_qp_11	1	B
4	0620_s25_qp_11	2	C
5	0620_s25_qp_12	1	C
6	0620_s25_qp_12	2	C
7	0620_s25_qp_13	1	C
8	0620_m24_qp_12	1	D
9	0620_s24_qp_11	1	D
10	0620_s24_qp_11	2	A
11	0620_s24_qp_12	1	C
12	0620_s24_qp_12	2	D
13	0620_s24_qp_13	1	A
14	0620_s24_qp_13	2	C
15	0620_w24_qp_11	1	A
16	0620_w24_qp_11	2	B
17	0620_w24_qp_12	1	C
18	0620_w24_qp_12	2	B
19	0620_w24_qp_13	1	C
20	0620_w24_qp_13	2	C
21	0620_w24_qp_13	3	D
22	0620_m23_qp_12	1	D
23	0620_m23_qp_12	2	C
24	0620_s23_qp_12	1	C
25	0620_s23_qp_13	1	A
26	0620_w23_qp_11	1	D
27	0620_w23_qp_12	1	D
28	0620_w23_qp_13	1	D
29	0620_m22_qp_12	1	A
30	0620_m22_qp_12	2	D
31	0620_s22_qp_11	1	C
32	0620_s22_qp_12	1	C
33	0620_s22_qp_13	1	D
34	0620_w22_qp_11	1	C
35	0620_w22_qp_12	1	A
36	0620_w22_qp_13	1	D
37	0620_m21_qp_12	1	D
38	0620_m21_qp_12	2	A
39	0620_s21_qp_11	1	B
40	0620_s21_qp_12	1	D
41	0620_s21_qp_13	1	B
42	0620_w21_qp_11	1	B
43	0620_w21_qp_12	1	C
44	0620_w21_qp_13	1	A
45	0620_m20_qp_12	1	A
46	0620_s20_qp_11	1	A
47	0620_s20_qp_12	1	D
48	0620_s20_qp_13	1	C
49	0620_w20_qp_11	1	C

SN	Paper	Q. No.	Answer
50	0620_w20_qp_11	2	D
51	0620_w20_qp_12	2	B
52	0620_w20_qp_13	2	D
53	0620_m19_qp_12	1	C
54	0620_s19_qp_11	1	D
55	0620_s19_qp_12	1	D
56	0620_s19_qp_13	1	A
57	0620_w19_qp_11	1	A
58	0620_m18_qp_12	1	C
59	0620_s18_qp_11	1	B
60	0620_s18_qp_12	1	D
61	0620_w18_qp_11	1	D
62	0620_w18_qp_11	2	C
63	0620_w18_qp_12	1	B
64	0620_w18_qp_12	2	D
65	0620_w18_qp_13	1	B
66	0620_w18_qp_13	2	C
67	0620_s17_qp_11	1	B
68	0620_s17_qp_11	3	C
69	0620_s17_qp_12	1	B
70	0620_s17_qp_13	1	B
71	0620_s17_qp_13	3	D
72	0620_w17_qp_11	1	D
73	0620_w17_qp_12	1	D
74	0620_w17_qp_13	1	B
75	0620_s25_qp_12	3	D
76	0620_w24_qp_12	3	A
77	0620_s23_qp_11	1	D
78	0620_s21_qp_13	2	D
79	0620_s18_qp_13	1	B
80	0620_m17_qp_12	1	B
81	0620_s25_qp_12	4	C
82	0620_s25_qp_13	2	D
83	0620_m24_qp_12	2	C
84	0620_s24_qp_13	3	B
85	0620_w24_qp_11	4	A
86	0620_w24_qp_12	4	C
87	0620_s23_qp_11	2	C
88	0620_s23_qp_12	2	A
89	0620_s23_qp_13	2	B
90	0620_w23_qp_11	2	C
91	0620_w23_qp_12	2	C
92	0620_w23_qp_13	2	A
93	0620_m22_qp_12	6	C
94	0620_w20_qp_11	8	C
95	0620_s18_qp_13	5	B
96	0620_w18_qp_11	8	B
97	0620_w17_qp_11	5	C
98	0620_w17_qp_12	5	D

To access the full eBook and explore more content, visit:

[www.examinent.com](http://www.examinent.com)