

## IGCSE Chemistry

Past-Paper Exercise Sheets — Question Index

47 subtopics • 300 questions • 989 marks

### 1.1 Solids, liquids and gases

8 questions, 20 marks • multiple choice x7, short answer

| Source      | Q | Type            | Marks |
|-------------|---|-----------------|-------|
| 0620/21 N25 | 1 | multiple choice | 1     |
| 0620/22 N25 | 2 | multiple choice | 1     |
| 0620/23 N25 | 1 | multiple choice | 1     |
| 0620/42 N25 | 1 | short answer    | 13    |
| 0620/21 J25 | 1 | multiple choice | 1     |
| 0620/22 J25 | 1 | multiple choice | 1     |
| 0620/23 J25 | 2 | multiple choice | 1     |
| 0620/22 M25 | 2 | multiple choice | 1     |

### 1.2 Diffusion

4 questions, 4 marks • multiple choice x4

| Source      | Q | Type            | Marks |
|-------------|---|-----------------|-------|
| 0620/21 N25 | 2 | multiple choice | 1     |
| 0620/22 N25 | 3 | multiple choice | 1     |
| 0620/23 N25 | 2 | multiple choice | 1     |
| 0620/22 M25 | 3 | multiple choice | 1     |

### 2.1 Elements, compounds and mixtures

2 questions, 11 marks • multiple choice, short answer

| Source      | Q | Type            | Marks |
|-------------|---|-----------------|-------|
| 0620/22 N25 | 4 | multiple choice | 1     |
| 0620/41 J25 | 1 | short answer    | 10    |

### 2.2 Atomic structure and the Periodic Table

9 questions, 30 marks • multiple choice x7, calculation, short answer

| Source      | Q | Type            | Marks |
|-------------|---|-----------------|-------|
| 0620/21 N25 | 3 | multiple choice | 1     |
| 0620/21 N25 | 5 | multiple choice | 1     |
| 0620/22 N25 | 5 | multiple choice | 1     |
| 0620/23 N25 | 3 | multiple choice | 1     |
| 0620/41 N25 | 1 | calculation     | 13    |
| 0620/22 J25 | 3 | multiple choice | 1     |
| 0620/22 J25 | 4 | multiple choice | 1     |
| 0620/41 J25 | 2 | short answer    | 10    |
| 0620/22 M25 | 4 | multiple choice | 1     |

### 2.3 Isotopes

6 questions, 14 marks • multiple choice x5, short answer

| Source      | Q | Type            | Marks |
|-------------|---|-----------------|-------|
| 0620/22 N25 | 6 | multiple choice | 1     |
| 0620/23 N25 | 6 | multiple choice | 1     |
| 0620/22 J25 | 5 | multiple choice | 1     |
| 0620/43 J25 | 2 | short answer    | 9     |
| 0620/22 M25 | 5 | multiple choice | 1     |
| 0620/22 M25 | 6 | multiple choice | 1     |

### 2.4 Ions and ionic bonds

6 questions, 28 marks • multiple choice x4, short answer x2

| Source      | Q | Type            | Marks |
|-------------|---|-----------------|-------|
| 0620/21 N25 | 6 | multiple choice | 1     |
| 0620/22 N25 | 7 | multiple choice | 1     |
| 0620/23 N25 | 5 | multiple choice | 1     |
| 0620/43 N25 | 2 | short answer    | 8     |
| 0620/23 J25 | 6 | multiple choice | 1     |
| 0620/42 M25 | 2 | short answer    | 16    |

### 2.5 Simple molecules and covalent bonds

5 questions, 50 marks • multiple choice x2, short answer x2, calculation

| Source      | Q | Type            | Marks |
|-------------|---|-----------------|-------|
| 0620/23 N25 | 7 | multiple choice | 1     |
| 0620/43 N25 | 4 | short answer    | 17    |
| 0620/41 J25 | 4 | calculation     | 15    |
| 0620/42 J25 | 2 | short answer    | 16    |
| 0620/22 M25 | 7 | multiple choice | 1     |

## 2.6 Giant covalent structures

5 questions, 5 marks • multiple choice x5

| Source      | Q | Type            | Marks |
|-------------|---|-----------------|-------|
| 0620/21 N25 | 4 | multiple choice | 1     |
| 0620/22 N25 | 8 | multiple choice | 1     |
| 0620/23 N25 | 8 | multiple choice | 1     |
| 0620/21 J25 | 7 | multiple choice | 1     |
| 0620/22 J25 | 6 | multiple choice | 1     |

## 2.7 Metallic bonding

5 questions, 33 marks • multiple choice x3, short answer x2

| Source      | Q | Type            | Marks |
|-------------|---|-----------------|-------|
| 0620/21 N25 | 7 | multiple choice | 1     |
| 0620/22 N25 | 9 | multiple choice | 1     |
| 0620/41 J25 | 3 | short answer    | 15    |
| 0620/43 J25 | 3 | short answer    | 15    |
| 0620/22 M25 | 8 | multiple choice | 1     |

## 3.1 Formulae

9 questions, 9 marks • multiple choice x9

| Source      | Q  | Type            | Marks |
|-------------|----|-----------------|-------|
| 0620/21 N25 | 9  | multiple choice | 1     |
| 0620/22 N25 | 11 | multiple choice | 1     |
| 0620/23 N25 | 9  | multiple choice | 1     |
| 0620/23 N25 | 10 | multiple choice | 1     |
| 0620/21 J25 | 8  | multiple choice | 1     |
| 0620/22 J25 | 8  | multiple choice | 1     |
| 0620/23 J25 | 8  | multiple choice | 1     |
| 0620/22 M25 | 9  | multiple choice | 1     |
| 0620/22 M25 | 11 | multiple choice | 1     |

## 3.3 The mole and the Avogadro constant

10 questions, 35 marks • multiple choice x8, short answer x2

| Source      | Q  | Type            | Marks |
|-------------|----|-----------------|-------|
| 0620/21 N25 | 10 | multiple choice | 1     |
| 0620/21 N25 | 11 | multiple choice | 1     |
| 0620/22 N25 | 10 | multiple choice | 1     |
| 0620/23 N25 | 12 | multiple choice | 1     |
| 0620/41 N25 | 3  | short answer    | 14    |
| 0620/42 N25 | 3  | short answer    | 13    |
| 0620/21 J25 | 9  | multiple choice | 1     |
| 0620/21 J25 | 20 | multiple choice | 1     |
| 0620/22 J25 | 9  | multiple choice | 1     |
| 0620/22 M25 | 12 | multiple choice | 1     |

## 4.1 Electrolysis

9 questions, 23 marks • multiple choice x8, short answer

| Source      | Q  | Type            | Marks |
|-------------|----|-----------------|-------|
| 0620/21 N25 | 12 | multiple choice | 1     |
| 0620/21 N25 | 13 | multiple choice | 1     |
| 0620/22 N25 | 13 | multiple choice | 1     |
| 0620/23 N25 | 13 | multiple choice | 1     |
| 0620/23 N25 | 14 | multiple choice | 1     |
| 0620/21 J25 | 10 | multiple choice | 1     |
| 0620/21 J25 | 11 | multiple choice | 1     |
| 0620/42 J25 | 3  | short answer    | 15    |
| 0620/22 M25 | 14 | multiple choice | 1     |

## 4.2 Hydrogen-oxygen fuel cells

5 questions, 5 marks • multiple choice x5

| Source      | Q  | Type            | Marks |
|-------------|----|-----------------|-------|
| 0620/22 N25 | 12 | multiple choice | 1     |
| 0620/23 N25 | 15 | multiple choice | 1     |
| 0620/21 J25 | 12 | multiple choice | 1     |
| 0620/22 J25 | 12 | multiple choice | 1     |
| 0620/22 M25 | 15 | multiple choice | 1     |

## 5.1 Exothermic and endothermic reactions

9 questions, 26 marks • multiple choice x8, short answer

| Source      | Q  | Type            | Marks |
|-------------|----|-----------------|-------|
| 0620/21 N25 | 14 | multiple choice | 1     |
| 0620/21 N25 | 15 | multiple choice | 1     |
| 0620/22 N25 | 14 | multiple choice | 1     |
| 0620/22 N25 | 15 | multiple choice | 1     |
| 0620/63 N25 | 2  | short answer    | 18    |
| 0620/21 J25 | 13 | multiple choice | 1     |
| 0620/22 J25 | 14 | multiple choice | 1     |
| 0620/23 J25 | 13 | multiple choice | 1     |
| 0620/22 M25 | 17 | multiple choice | 1     |

### 6.1 Physical and chemical changes

3 questions, 3 marks • multiple choice x3

| Source      | Q  | Type            | Marks |
|-------------|----|-----------------|-------|
| 0620/23 N25 | 16 | multiple choice | 1     |
| 0620/23 J25 | 27 | multiple choice | 1     |
| 0620/22 M25 | 18 | multiple choice | 1     |

### 6.2 Rate of reaction

8 questions, 41 marks • multiple choice x6, calculation x2

| Source      | Q  | Type            | Marks |
|-------------|----|-----------------|-------|
| 0620/21 N25 | 16 | multiple choice | 1     |
| 0620/22 N25 | 16 | multiple choice | 1     |
| 0620/21 J25 | 15 | multiple choice | 1     |
| 0620/22 J25 | 15 | multiple choice | 1     |
| 0620/23 J25 | 15 | multiple choice | 1     |
| 0620/61 J25 | 2  | calculation     | 17    |
| 0620/63 J25 | 2  | calculation     | 18    |
| 0620/22 M25 | 19 | multiple choice | 1     |

### 6.3 Reversible reactions and equilibrium

10 questions, 42 marks • multiple choice x8, calculation, short answer

| Source      | Q  | Type            | Marks |
|-------------|----|-----------------|-------|
| 0620/21 N25 | 17 | multiple choice | 1     |
| 0620/21 N25 | 19 | multiple choice | 1     |
| 0620/22 N25 | 18 | multiple choice | 1     |
| 0620/23 N25 | 19 | multiple choice | 1     |
| 0620/23 N25 | 20 | multiple choice | 1     |
| 0620/41 N25 | 4  | calculation     | 16    |
| 0620/21 J25 | 16 | multiple choice | 1     |
| 0620/23 J25 | 16 | multiple choice | 1     |
| 0620/41 J25 | 5  | short answer    | 18    |
| 0620/22 M25 | 20 | multiple choice | 1     |

### 6.4 Redox

8 questions, 26 marks • multiple choice x7, short answer

| Source      | Q  | Type            | Marks |
|-------------|----|-----------------|-------|
| 0620/21 N25 | 18 | multiple choice | 1     |
| 0620/22 N25 | 19 | multiple choice | 1     |
| 0620/23 N25 | 18 | multiple choice | 1     |
| 0620/23 N25 | 22 | multiple choice | 1     |
| 0620/42 N25 | 2  | short answer    | 19    |
| 0620/22 J25 | 17 | multiple choice | 1     |
| 0620/23 J25 | 18 | multiple choice | 1     |
| 0620/22 M25 | 21 | multiple choice | 1     |

### 7.1 The characteristic properties of acids and bases

9 questions, 23 marks • multiple choice x8, short answer

| Source      | Q  | Type            | Marks |
|-------------|----|-----------------|-------|
| 0620/21 N25 | 20 | multiple choice | 1     |
| 0620/22 N25 | 22 | multiple choice | 1     |
| 0620/23 N25 | 21 | multiple choice | 1     |
| 0620/23 N25 | 24 | multiple choice | 1     |
| 0620/23 N25 | 34 | multiple choice | 1     |
| 0620/42 N25 | 4  | short answer    | 15    |
| 0620/21 J25 | 18 | multiple choice | 1     |
| 0620/22 J25 | 19 | multiple choice | 1     |
| 0620/22 M25 | 22 | multiple choice | 1     |

### 7.2 Oxides

6 questions, 6 marks • multiple choice x6

| Source      | Q  | Type            | Marks |
|-------------|----|-----------------|-------|
| 0620/21 N25 | 22 | multiple choice | 1     |
| 0620/22 N25 | 21 | multiple choice | 1     |
| 0620/23 N25 | 25 | multiple choice | 1     |
| 0620/22 J25 | 20 | multiple choice | 1     |
| 0620/23 J25 | 20 | multiple choice | 1     |
| 0620/22 M25 | 23 | multiple choice | 1     |

### 7.3 Preparation of salts

9 questions, 53 marks • multiple choice x5, short answer x4

| Source      | Q  | Type            | Marks |
|-------------|----|-----------------|-------|
| 0620/21 N25 | 21 | multiple choice | 1     |
| 0620/22 N25 | 20 | multiple choice | 1     |
| 0620/23 N25 | 11 | multiple choice | 1     |
| 0620/41 N25 | 3  | short answer    | 14    |
| 0620/42 N25 | 3  | short answer    | 13    |
| 0620/43 N25 | 5  | short answer    | 12    |
| 0620/21 J25 | 19 | multiple choice | 1     |
| 0620/61 J25 | 1  | short answer    | 9     |
| 0620/22 M25 | 24 | multiple choice | 1     |

### 8.1 Arrangement of elements

5 questions, 5 marks • multiple choice x5

| Source      | Q  | Type            | Marks |
|-------------|----|-----------------|-------|
| 0620/21 N25 | 23 | multiple choice | 1     |
| 0620/23 N25 | 23 | multiple choice | 1     |
| 0620/21 J25 | 21 | multiple choice | 1     |
| 0620/23 J25 | 22 | multiple choice | 1     |
| 0620/22 M25 | 25 | multiple choice | 1     |

### 8.2 Group I properties

6 questions, 19 marks • multiple choice x5, short answer

| Source      | Q  | Type            | Marks |
|-------------|----|-----------------|-------|
| 0620/21 N25 | 24 | multiple choice | 1     |
| 0620/22 N25 | 23 | multiple choice | 1     |
| 0620/23 N25 | 27 | multiple choice | 1     |
| 0620/22 J25 | 22 | multiple choice | 1     |
| 0620/23 J25 | 21 | multiple choice | 1     |
| 0620/42 J25 | 5  | short answer    | 14    |

### 8.3 Group VII properties

7 questions, 19 marks • multiple choice x6, short answer

| Source      | Q  | Type            | Marks |
|-------------|----|-----------------|-------|
| 0620/21 N25 | 25 | multiple choice | 1     |
| 0620/22 N25 | 24 | multiple choice | 1     |
| 0620/21 J25 | 22 | multiple choice | 1     |
| 0620/22 J25 | 23 | multiple choice | 1     |
| 0620/22 J25 | 24 | multiple choice | 1     |
| 0620/22 M25 | 26 | multiple choice | 1     |
| 0620/42 M25 | 3  | short answer    | 13    |

### 8.4 Transition elements

4 questions, 20 marks • multiple choice x3, short answer

| Source      | Q  | Type            | Marks |
|-------------|----|-----------------|-------|
| 0620/23 N25 | 26 | multiple choice | 1     |
| 0620/21 J25 | 23 | multiple choice | 1     |
| 0620/23 J25 | 24 | multiple choice | 1     |
| 0620/42 M25 | 5  | short answer    | 17    |

### 8.5 Noble gases

4 questions, 4 marks • multiple choice x4

| Source      | Q  | Type            | Marks |
|-------------|----|-----------------|-------|
| 0620/22 N25 | 25 | multiple choice | 1     |
| 0620/21 J25 | 24 | multiple choice | 1     |
| 0620/22 J25 | 21 | multiple choice | 1     |
| 0620/23 J25 | 23 | multiple choice | 1     |

### 9.1 Properties of metals

2 questions, 29 marks • short answer x2

| Source      | Q | Type         | Marks |
|-------------|---|--------------|-------|
| 0620/41 N25 | 2 | short answer | 17    |
| 0620/43 N25 | 5 | short answer | 12    |

### 9.2 Uses of metals

1 question, 1 marks • multiple choice

| Source      | Q  | Type            | Marks |
|-------------|----|-----------------|-------|
| 0620/21 J25 | 25 | multiple choice | 1     |

### 9.3 Alloys and their properties

4 questions, 12 marks • multiple choice x3, short answer

| Source      | Q  | Type            | Marks |
|-------------|----|-----------------|-------|
| 0620/22 J25 | 25 | multiple choice | 1     |
| 0620/23 J25 | 26 | multiple choice | 1     |
| 0620/42 J25 | 4  | short answer    | 9     |
| 0620/22 M25 | 28 | multiple choice | 1     |

### 9.4 Reactivity series

9 questions, 9 marks • multiple choice x9

| Source      | Q  | Type            | Marks |
|-------------|----|-----------------|-------|
| 0620/21 N25 | 26 | multiple choice | 1     |
| 0620/21 N25 | 27 | multiple choice | 1     |
| 0620/22 N25 | 26 | multiple choice | 1     |
| 0620/23 N25 | 28 | multiple choice | 1     |
| 0620/21 J25 | 26 | multiple choice | 1     |
| 0620/21 J25 | 27 | multiple choice | 1     |
| 0620/22 J25 | 26 | multiple choice | 1     |
| 0620/23 J25 | 25 | multiple choice | 1     |
| 0620/22 M25 | 29 | multiple choice | 1     |

### 9.5 Corrosion of metals

5 questions, 5 marks • multiple choice x5

| Source      | Q  | Type            | Marks |
|-------------|----|-----------------|-------|
| 0620/21 N25 | 28 | multiple choice | 1     |
| 0620/22 N25 | 27 | multiple choice | 1     |
| 0620/21 J25 | 29 | multiple choice | 1     |
| 0620/22 J25 | 27 | multiple choice | 1     |
| 0620/22 M25 | 27 | multiple choice | 1     |

### 9.6 Extraction of metals

9 questions, 27 marks • multiple choice x8, short answer

| Source      | Q  | Type            | Marks |
|-------------|----|-----------------|-------|
| 0620/21 N25 | 29 | multiple choice | 1     |
| 0620/22 N25 | 28 | multiple choice | 1     |
| 0620/22 N25 | 29 | multiple choice | 1     |
| 0620/23 N25 | 32 | multiple choice | 1     |
| 0620/23 N25 | 33 | multiple choice | 1     |
| 0620/42 N25 | 2  | short answer    | 19    |
| 0620/21 J25 | 28 | multiple choice | 1     |
| 0620/22 J25 | 28 | multiple choice | 1     |
| 0620/22 M25 | 30 | multiple choice | 1     |

### 10.1 Water

6 questions, 6 marks • multiple choice x6

| Source      | Q  | Type            | Marks |
|-------------|----|-----------------|-------|
| 0620/22 N25 | 30 | multiple choice | 1     |
| 0620/22 J25 | 29 | multiple choice | 1     |
| 0620/23 J25 | 28 | multiple choice | 1     |
| 0620/23 J25 | 29 | multiple choice | 1     |
| 0620/22 M25 | 31 | multiple choice | 1     |
| 0620/22 M25 | 32 | multiple choice | 1     |

### 10.2 Fertilisers

2 questions, 2 marks • multiple choice x2

| Source      | Q  | Type            | Marks |
|-------------|----|-----------------|-------|
| 0620/21 J25 | 30 | multiple choice | 1     |
| 0620/22 J25 | 18 | multiple choice | 1     |

### 10.3 Air quality and climate

10 questions, 10 marks • multiple choice x10

| Source      | Q  | Type            | Marks |
|-------------|----|-----------------|-------|
| 0620/21 N25 | 30 | multiple choice | 1     |
| 0620/21 N25 | 31 | multiple choice | 1     |
| 0620/22 N25 | 31 | multiple choice | 1     |
| 0620/22 N25 | 33 | multiple choice | 1     |
| 0620/23 N25 | 29 | multiple choice | 1     |
| 0620/23 N25 | 30 | multiple choice | 1     |
| 0620/21 J25 | 31 | multiple choice | 1     |
| 0620/21 J25 | 32 | multiple choice | 1     |
| 0620/22 J25 | 30 | multiple choice | 1     |
| 0620/22 M25 | 34 | multiple choice | 1     |

### 11.1 Formulae, functional groups and terminology

8 questions, 55 marks • multiple choice x4, short answer x3, calculation

| Source      | Q  | Type            | Marks |
|-------------|----|-----------------|-------|
| 0620/22 N25 | 34 | multiple choice | 1     |
| 0620/23 N25 | 37 | multiple choice | 1     |
| 0620/42 N25 | 5  | calculation     | 12    |
| 0620/42 N25 | 6  | short answer    | 8     |
| 0620/43 N25 | 6  | short answer    | 17    |
| 0620/21 J25 | 33 | multiple choice | 1     |
| 0620/23 J25 | 34 | multiple choice | 1     |
| 0620/42 M25 | 6  | short answer    | 14    |

### 11.3 Fuels

3 questions, 3 marks • multiple choice x3

| Source      | Q  | Type            | Marks |
|-------------|----|-----------------|-------|
| 0620/21 N25 | 32 | multiple choice | 1     |
| 0620/22 N25 | 36 | multiple choice | 1     |
| 0620/22 J25 | 34 | multiple choice | 1     |

### 11.4 Alkanes

8 questions, 19 marks • multiple choice x7, calculation

| Source      | Q  | Type            | Marks |
|-------------|----|-----------------|-------|
| 0620/21 N25 | 34 | multiple choice | 1     |
| 0620/23 N25 | 31 | multiple choice | 1     |
| 0620/42 N25 | 5  | calculation     | 12    |
| 0620/21 J25 | 34 | multiple choice | 1     |
| 0620/22 J25 | 35 | multiple choice | 1     |
| 0620/23 J25 | 35 | multiple choice | 1     |
| 0620/23 J25 | 36 | multiple choice | 1     |
| 0620/22 M25 | 36 | multiple choice | 1     |

### 11.5 Alkenes

7 questions, 37 marks • multiple choice x5, short answer x2

| Source      | Q  | Type            | Marks |
|-------------|----|-----------------|-------|
| 0620/21 N25 | 36 | multiple choice | 1     |
| 0620/22 N25 | 32 | multiple choice | 1     |
| 0620/23 N25 | 17 | multiple choice | 1     |
| 0620/23 N25 | 36 | multiple choice | 1     |
| 0620/23 J25 | 33 | multiple choice | 1     |
| 0620/42 J25 | 6  | short answer    | 18    |
| 0620/42 M25 | 6  | short answer    | 14    |

### 11.6 Alcohols

8 questions, 27 marks • multiple choice x7, short answer

| Source      | Q  | Type            | Marks |
|-------------|----|-----------------|-------|
| 0620/21 N25 | 33 | multiple choice | 1     |
| 0620/22 N25 | 37 | multiple choice | 1     |
| 0620/41 N25 | 5  | short answer    | 20    |
| 0620/21 J25 | 17 | multiple choice | 1     |
| 0620/21 J25 | 35 | multiple choice | 1     |
| 0620/22 J25 | 32 | multiple choice | 1     |
| 0620/22 J25 | 36 | multiple choice | 1     |
| 0620/22 M25 | 37 | multiple choice | 1     |

### 11.7 Carboxylic acids

9 questions, 32 marks • multiple choice x7, short answer x2

| Source      | Q  | Type            | Marks |
|-------------|----|-----------------|-------|
| 0620/21 N25 | 37 | multiple choice | 1     |
| 0620/22 N25 | 35 | multiple choice | 1     |
| 0620/22 N25 | 38 | multiple choice | 1     |
| 0620/23 N25 | 38 | multiple choice | 1     |
| 0620/42 N25 | 6  | short answer    | 8     |
| 0620/43 N25 | 6  | short answer    | 17    |
| 0620/21 J25 | 14 | multiple choice | 1     |
| 0620/21 J25 | 36 | multiple choice | 1     |
| 0620/22 J25 | 33 | multiple choice | 1     |

### 11.8 Polymers

7 questions, 7 marks • multiple choice x7

| Source      | Q  | Type            | Marks |
|-------------|----|-----------------|-------|
| 0620/21 N25 | 35 | multiple choice | 1     |
| 0620/21 N25 | 38 | multiple choice | 1     |
| 0620/23 N25 | 35 | multiple choice | 1     |
| 0620/21 J25 | 37 | multiple choice | 1     |
| 0620/22 J25 | 37 | multiple choice | 1     |
| 0620/23 J25 | 37 | multiple choice | 1     |
| 0620/22 M25 | 38 | multiple choice | 1     |

### 12.1 Experimental design

5 questions, 35 marks • calculation x3, short answer x2

| Source      | Q | Type         | Marks |
|-------------|---|--------------|-------|
| 0620/61 N25 | 1 | short answer | 5     |
| 0620/62 N25 | 1 | calculation  | 9     |
| 0620/63 N25 | 1 | short answer | 7     |
| 0620/62 J25 | 1 | calculation  | 7     |
| 0620/63 J25 | 1 | calculation  | 7     |

### 12.2 Acid-base titrations

5 questions, 39 marks • multiple choice x3, calculation x2

| Source      | Q  | Type            | Marks |
|-------------|----|-----------------|-------|
| 0620/22 N25 | 39 | multiple choice | 1     |
| 0620/61 N25 | 2  | calculation     | 18    |
| 0620/62 N25 | 2  | calculation     | 18    |
| 0620/21 J25 | 38 | multiple choice | 1     |
| 0620/22 J25 | 38 | multiple choice | 1     |

### 12.3 Chromatography

5 questions, 5 marks • multiple choice x5

| Source      | Q  | Type            | Marks |
|-------------|----|-----------------|-------|
| 0620/22 N25 | 40 | multiple choice | 1     |
| 0620/23 N25 | 40 | multiple choice | 1     |
| 0620/21 J25 | 40 | multiple choice | 1     |
| 0620/23 J25 | 40 | multiple choice | 1     |
| 0620/22 M25 | 40 | multiple choice | 1     |

### 12.4 Separation and purification

7 questions, 19 marks • multiple choice x6, short answer

| Source      | Q  | Type            | Marks |
|-------------|----|-----------------|-------|
| 0620/21 N25 | 40 | multiple choice | 1     |
| 0620/42 N25 | 3  | short answer    | 13    |
| 0620/21 J25 | 39 | multiple choice | 1     |
| 0620/22 J25 | 39 | multiple choice | 1     |
| 0620/22 J25 | 40 | multiple choice | 1     |
| 0620/23 J25 | 38 | multiple choice | 1     |
| 0620/23 J25 | 39 | multiple choice | 1     |

### 12.5 Identification of ions and gases

9 questions, 56 marks • multiple choice x3, short answer x3, calculation x3

| Source      | Q  | Type            | Marks |
|-------------|----|-----------------|-------|
| 0620/21 N25 | 39 | multiple choice | 1     |
| 0620/23 N25 | 39 | multiple choice | 1     |
| 0620/61 N25 | 3  | short answer    | 11    |
| 0620/62 N25 | 3  | short answer    | 7     |
| 0620/63 N25 | 3  | calculation     | 9     |
| 0620/61 J25 | 3  | calculation     | 8     |
| 0620/62 J25 | 3  | calculation     | 9     |
| 0620/63 J25 | 3  | short answer    | 9     |
| 0620/22 M25 | 39 | multiple choice | 1     |