

**ICSE SEMESTER 1 EXAMINATION**  
**SPECIMEN QUESTION PAPER**  
**CHEMISTRY**  
**SCIENCE PAPER - 2**

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*Maximum Marks: 40*

*Time allowed: One hour (inclusive of reading time)*

**ALL QUESTIONS ARE COMPULSORY.**

*The marks intended for questions are given in brackets [ ].*

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**Select the correct option for each of the following questions.**

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**Question 1**

The trend in metallic nature of metals as we go from top to bottom in a group: [1]

- ✓ 1. increases
- 2. decreases
- 3. neither increases nor decreases
- 4. none of the above

**Question 2**

The colour change observed when the solution of magnesium hydroxide is tested with the following indicators: [1]

- ✓ 1. phenolphthalein turns colourless to pink
- 2. methyl orange remains orange
- 3. phenolphthalein remains colourless
- 4. blue litmus solution turns red

**Question 3**

The compound which is a non-electrolyte: [1]

- 1. KCl (aq)
- 2. H<sub>2</sub>SO<sub>4</sub> (dil)
- ✓ 3. CCl<sub>4</sub> (l)
- 4. CH<sub>3</sub>COOH (aq)

#### Question 4

Twice the vapour density gives: [1]

1. Actual vapour density
2. Relative vapour density
- ☒ 3. Molecular mass
4. Molar volume

#### Question 5

The number of lone pair of electrons in the nitrogen atom in ammonia molecule: [1]

- ☒ 1. One
2. Two
3. Three
4. Four

#### Question 6

Elements with similar valence shell configuration in a Periodic Table are placed in: [1]

1. different groups
2. same period
3. different period
- ☒ 4. same group

#### Question 7

The gas liberated when sodium sulphite reacts with dilute sulphuric acid: [1]

1. Carbon dioxide
2. Hydrogen
3. Hydrogen sulphide
- ☒ 4. Sulphur dioxide

#### Question 8

Thickness of metal coating during electroplating depends on: [1]

- ☒ 1. Duration of current passage
2. A low current
3. Nature of cathode
4. Purity of anode

### Question 9

Ionic bonding is seen in:

[1]

1. Methane
2. Hydrogen
3. Ammonia
- ✓ 4. Sodium oxide

### Question 10

The molecular formula of an organic compound is  $C_6H_{12}O_6$  and the empirical formula is  $CH_2O$ , the value of n is: [1]

1. 2
- ✓ 2. 6
3. 1
4. 12

### Question 11

When an electron is added in the valence shell:

[1]

- ✓ 1. energy is released
2. energy is absorbed
3. energy remains same
4. none of the above

### Question 12

The most electronegative element is:

[1]

1. Sodium
2. Aluminium
3. Bromine
- ✓ 4. Fluorine

### Question 13

The bond in Carbon Tetrachloride is:

[1]

- ✓ 1. Single Covalent Bond
2. Double Covalent Bond
3. Ionic bond
4. Triple Covalent Bond

#### Question 14

The type of bonding present in the nitrogen molecule: [1]

1. Single Covalent Bond
2. Double Covalent Bond
3. Polar Covalent bond
- ✓ 4. Triple Covalent Bond

#### Question 15

A compound with Empirical formula  $XY_2$ , has the vapour density equal to its Empirical formula weight, its molecular formula is [1]

- ✓ 1.  $X_2Y_4$
2.  $X_2Y_2$
3.  $XY$
4.  $X_4Y_2$

#### Question 16

Identify one statement that does not hold true for electrorefining of copper: [1]

1. Electrolyte is acidified  $CuSO_4$  solution
- ✓ 2. Cathode is a thin strip of impure copper
3. Anode dissolves in the electrolyte
4. Anode gets thicker.

#### Question 17

The observation when ammonium chloride reacts with potassium hydroxide: [1]

1. A reddish brown gas
- ✓ 2. A colourless gas which turns moist red litmus blue.
3. A green coloured gas which turns moist blue litmus paper red.
4. A colourless gas which turns lime water milky.

#### Question 18

The colour of the precipitate formed when ferrous ions react with ammonium hydroxide solution: [1]

1. Blue
2. Reddish brown
- ✓ 3. Dirty green
4. white

### Question 19

During ionisation, metals lose electrons this change can be called: [1]

- ✓ 1. Oxidation
- 2. Reduction
- 3. Redox
- 4. Displacement

### Question 20

The oxide of a metal that reacts both with acid and alkali to form salt and water: [1]

- 1. Sodium oxide
- 2. Magnesium oxide
- ✓ 3. Aluminium oxide
- 4. Ferrous oxide

### Question 21

The property which decreases from left to right across the periodic table: [1]

- 1. Electron affinity
- 2. Electro negativity
- 3. Ionisation energy
- ✓ 4. Metallic character

### Question 22

On the basis of electronic configuration the period and group of  $B_5^9$  is: [1]

- ✓ 1. 2 and IIIA
- 2. 3 and IIA
- 3. 4 and VIA
- 4. 5 and VIIA

### Question 23

Select the ion that would get selectively discharged from the aqueous mixture of the ions listed below: [1]

- 1.  $\text{SO}_4^{-2}$
- 2.  $\text{NO}_3^{-1}$
- ✓ 3.  $\text{OH}^{-1}$
- 4.  $\text{Cl}^{-1}$

#### Question 24

Hydronium ion is formed when a molecule of water combines with: [1]

1. Hydrogen atom
- ✓ 2. Proton
3. Hydrogen molecule
4. Oxygen atom

#### Question 25

The condition that is most appropriate for electroplating with nickel: [1]

1. Electrolyte is molten copper sulphate
- ✓ 2. Anode should be made of impure nickel plate
3. Alternating current is used
4. Periodic replacement of cathode is needed.

#### Question 26

The hydroxide which is soluble in excess ammonium hydroxide: [1]

1. Lead hydroxide
2. Ferrous hydroxide
- ✓ 3. Zinc hydroxide
4. Ferric hydroxide

#### Question 27

Which statement is not true for electrolysis? [1]

1. Cations migrate towards cathode
2. Anions discharge at anode
- ✓ 3. Anions get reduced during electrolysis
4. Cations get reduced during electrolysis

#### Question 28

$H_2Y$  is the formula of a compound. What is the valency exhibited by Y? [1]

1. 1
- ✓ 2. 2
3. 3
4. none of the above

### Question 29

The particles which attract one another to form electrovalent compounds are: [1]

1. Electrons
2. Protons
- ✓ 3. Ions
4. Molecules

### Question 30

Which one of the following statements is NOT correct? [1]

1. Pure water does not allow a current to flow through it.
- ✓ 2. The electrolyte only conducts when in the molten state.
3. Electrodes that react with the electrolytes are said to be “active”.
4. Ions must be present in the electrolyte in order that it conducts electricity.

### Question 31

The salt formed by partial replacement of hydrogen ion of an acid by a basic radical. [1]

1. Sodium sulphite
2. Magnesium hydroxide
3. Potassium sulphate
- ✓ 4. Zinc hydrogen sulphite

### Question 32

Alkali which dissociates only partially in aqueous solution: [1]

1. Lithium hydroxide
- ✓ 2. Calcium hydroxide
3. Potassium hydroxide
4. Sodium hydroxide

### Question 33

The property that matches with elements of the halogen family are: [1]

- ✓ 1. They are chemically highly reactive
2. They are metallic in nature.
3. They are monoatomic in their molecular form.
4. They have one electron in the valence shell.

### Question 34

Cathode is a reducing electrode because:

[1]

1. It has less number of electrons.
2. It has deficiency of electrons
- ✓ 3. Cations gain electrons from cathode
4. Anions lose electrons to cathode

### Question 35

The simplest ratio of the atoms of carbon and hydrogen is 1:1. Identify the possible molecular formula.

[1]

- ✓ 1.  $C_6H_6$
2.  $C_2H_4$
3.  $C_6H_2$
4.  $C_3H_4$

### Question 36

The empirical formula of the compound is  $CH_2O$ , the possible molecular formula can be:

[1]

- ✓ 1.  $C_3H_6O_3$
2.  $C_2H_4O$
3.  $C_4H_3O_2$
4.  $C_4H_6O_2$



### Question 37

Observe the Periodic Table to answer the questions:

[4]

Group No.	1-1A	2-II A	13-III A	14-IV A	15-V A	16-VI A	17-VII A	18-0
2 <sup>nd</sup> period	Li		D			O	J	Ne
3 <sup>rd</sup> period	A	Mg	E	Si		X	M	
4 <sup>th</sup> period	R	T	G		Q	Y		Z

In the above table some elements are mentioned with their own symbol and position of the Periodic Table while others are shown with a letter. Answer the following questions pertaining to the same.

(a) Identify the most electronegative element.

1. Li.
2. Ne
3. Z
- ✓ 4. J

(b) How many Valence electrons are present in Q?

1. 3
- ✓ 2. 5
3. 15
4. 4

(c) The formula of the compound formed between E and O is

1. EO
2. E<sub>3</sub>O<sub>2</sub>
- ✓ 3. E<sub>2</sub>O<sub>3</sub>
4. EO<sub>3</sub>

(d) The type of bond formed between A and X:

- ✓ 1. Ionic bond
2. Metallic bond
3. Covalent bond
4. Coordinate bond