



Estd, 1861

BOYS' HIGH SCHOOL AND COLLEGE

FIRST TERM EXAMINATION (2025-26)

CLASS - X

CHEMISTRY

(Science Paper-2)

Maximum Marks: 80

Time allowed: Two hours

Section A is compulsory. Attempt any four questions from Section B. The intended marks for questions or parts of questions are given in brackets ().

SECTION-A

(Attempt all questions from this section)

Question 1

Choose the correct answers to the questions from the given options.

(Do not copy the questions, write the correct answers only.)

(15)

- i) The atomic size on moving across the period
 - a) Decreases
 - b) Increases
 - c) Remains the same
 - d) Sometimes increases and sometimes decreases
- ii) Among the following, which are the bridge elements?
 - a) C- Mg
 - b) Li-Mg
 - c) Be-Si
 - d) Be-B
- iii) The salt in which the solution gives a pale green precipitate with sodium hydroxide solution and a white precipitate with barium chloride solution is
 - a) Iron (III) sulphate
 - b) Iron (II)sulphate
 - c) Iron (II)chloride
 - d) Iron (III)chloride
- iv) An element X has an atomic number 15. With which of the following elements will it show similar chemical properties?
 - a) Ne(10)
 - b) N(7)
 - c) O(8)
 - d) Be(4)
- v) What kind of bond is formed between the metallic and non-metallic element?
 - a) Coordinate bond
 - b) Covalent bond
 - c) Ionic bond
 - d) None of these
- vi) When a metal atom becomes an ion
 - a) It loses electrons and is oxidized
 - b) It gains electrons and is reduced
 - c) It gains electrons and is oxidized
 - d) It loses electrons and is reduced
- vii) The molecule containing a triple covalent bond is
 - a) Ammonia
 - b) Methane
 - c) Water
 - d) Nitrogen
- viii) To increase the pH value of a neutral solution, we should add
 - a) An acid
 - b) An acid salt
 - c) An alkali
 - d) A salt
- ix) When dilute sulphuric acid reacts with iron sulphide, the gas evolved is
 - a) Hydrogen sulphide
 - b) Sulphur dioxide
 - c) Sulphur trioxide
 - d) Vapour of sulphuric acid
- x) The reaction, which involves the formation of salts is
 - a) Combination reaction
 - b) Redox reaction
 - c) Decomposition reaction
 - d) Neutralization reaction
- xi) Dilute sulphuric acid will produce a white precipitate when added to a solution of
 - a) Copper nitrate
 - b) Zinc nitrate
 - c) Lead nitrate
 - d) Sodium nitrate
- xii) Which of the following hydroxides possesses pale blue colour?
 - a) Lead hydroxide
 - b) Copper hydroxide
 - c) Zinc hydroxide
 - d) Ferrous hydroxide
- xiii) A metal which is amphoteric in nature
 - a) Manganese
 - b) Copper
 - c) Sodium
 - d) Zinc
- xiv) During the electrolysis of copper sulphate solution, the mass of anode gradually
 - a) Remains same
 - b) Decreases
 - c) Increases
 - d) None of these
- xv) During the electrolysis of molten lead bromide, which of the following takes place?
 - a) Bromine is released at the cathode
 - b) Lead is deposited at the anode
 - c) Bromine ions gain electrons
 - d) Lead is deposited at the cathode

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Question 2

- i) Match the Column A with Column B.

(5)

Column A

- a) Oranges
- b) Apples
- c) Tomatoes
- d) Tamarind
- e) Sour milk/curd

Column B

- Oxalic acid
- Lactic acid
- Citric acid
- Maleic acid
- Tartaric acid

- ii) Complete the following statements by choosing the correct answers from the bracket. (5)
- a) Ionic compound is formed when the difference between the values of electronegativities of two combining atoms is very (large/less).
 - b) In covalent compounds, the bond is formed due to the (sharing/transfer) of electrons.
 - c) Electrovalent compounds have..... (high/low) melting points.
 - d) Ionic or electrovalent compounds do not conduct electricity in their..... (fused/solid) state.
 - e) Melting and boiling points of covalent compounds are generally..... (high/low).
- iii) Name the following: - (5)
- a) Gas that is produced at the anode during the electrolysis of acidified water.
 - b) Gas obtained at the cathode, when electric current is passed through the dilute HCl solution.
 - c) Element which has the highest ionization potential.
 - d) Particle that moves when electric current is passed through metal wire.
 - e) Ore of zinc containing its sulphide.
- iv) Differentiate between the following: - (5)
- a) Oxidation and reduction
 - b) Acids and bases
 - c) Strong acids and weak acids
 - d) Anode and cathode
 - e) Mineral and ore
- v) Arrange the following as per the instructions given in the brackets. (5)
- a) Cs, Na, Li, K, Rb (increasing order of metallic character)
 - b) Mg, Cl, Na, S, Si (decreasing order of atomic size)
 - c) Cl, F, Br, I (increasing order of electron affinity)
 - d) He, Ar, Ne (increasing order of the number of electron shells)
 - e) F, Cl, Br (increasing electronegativity)

SECTION-B

(Attempt any four questions.)

Question 3

- i) Give reason, why electrolysis of acidulated water is considered to be an example of catalysis? (2)
- ii) Define the following terms. (2)
 - a) Ionisation potential
 - b) Electron affinity
- iii) How will you bring out the reduction of the following metal oxides? (3)
ZnO, HgO and Ag₂O
- iv) a) What is an electrolyte?
b) Classify the following substance under three headings. Strong electrolytes, weak electrolytes, non-electrolytes.
(Acetic acid, ammonium chloride, ammonium hydroxide and carbon tetrachloride). (3)

Question 4

- i) An element 'Z' has atomic number 16. Answer the following questions
 - a) State the period and group to which 'Z' belongs.
 - b) Is 'Z' a metal or a non-metal? (2)
- ii) What is the difference between the fluorine ion and neon atom even when the electronic configuration of both are same? (2)
- iii) Match the atomic number 2, 8 and 19 with each of the following (3)
 - a) A metal with valency 1.
 - b) A gaseous element with valency 2.
 - c) A rare gas.
- iv) a) Name the most common ore of the metal aluminium from which the metal is extracted.
b) Write the chemical formula of the above ore.
c) Name the process by which impure ore of aluminium gets purified by using concentrated solution of an alkali. (3)

Question 5

- i) Draw the structure of stable positive ion when an acid is dissolved in water (2)
- ii) What will be the action of alkalies on (2)
 - a) Amphoteric metal oxides?
 - b) Amphoteric metal hydroxides?
- iii) How could the modern periodic table remove various anomalies of Mendeleev's periodic table? (3)
- iv) Define the following terms. (3)
 - a) Analysis
 - b) Reagent
 - c) Qualitative analysis

Question 6

- i) How many lone pair(s) of electrons present in the following molecules? (2)
 - a) Ammonia
 - b) Hydrogen sulphide
- ii) Give reason (2)
 - a) Dilute acids are strong acids.
 - b) Sea water is a strong electrolyte.
- iii) a) What do you understand by a lone pair of electrons? (3)
- b) What is the condition required for the formation of polar molecule? (3)
- iv) Why do the elements of group 1 and elements of group 17 both have valency equals to 1? Explain. (3)

Question 7

- i) Write the two different conditions to be maintained during electroplating. (2)
- ii) 'A' is a soluble acidic oxide and 'B' is a soluble base. (2)

What should be the pH of

 - a) Aqueous solution of A?
 - b) Aqueous solution of B?
- iii) Name the main components of the following alloys: (3)
 - a) Brass
 - b) Duralumin
 - c) Bronze
- iv) Write the three characteristics of electrolysis. (3)

Question 8

- i) State one observation for each of the following. (2)
 - a) Excess ammonium hydroxide solution is added to lead nitrate solution.
 - b) Sodium hydroxide solution is added to ferric chloride solution at first a little and then in excess.
- ii) For the electro-refining of copper, (2)
 - a) What is the cathode made up of?
 - b) Write the reaction that takes place at the anode.
- iii) How can metals at the top of the reactivity series be extracted from their ores? Explain with an example. (3)
- iv) Draw an electron dot diagram to show the formation of each of the following compounds. (3)
 - a) Magnesium chloride
 - b) Calcium oxide
 - c) Sodium chloride
