

Q 1. MCQs Encircle the correct answers

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- If pressure is raised to four times keeping temperature constant, then volume reduces to:
D. one half C. one third B. one fourth A. one fifth
- The relationship between volume and pressure keeping the temperature constant was also studied by:
B. French scientist Jacueous. Charles in 1787 A. Anglo – Irish scientist Robert Boyle in 1662
D. Italian scientist Amaedo Avogadro’s in 1811 C. English scientist Michael Faraday in 1834
- Look at the following four containers filled with equal volumes of water kept at different temperatures as shown below, then find out the correct order of decreasing volumes after five minutes?



at 30°C



at 20°C at 60°C



at 100°C



D. IV>I>II>III

C. IV>III>II>I

B. III>IV>II>I

A. IV>III>I>II

- When a saturated solution is diluted it turns into:
D. supersaturated solution C. unsaturated solution B. a concentrated solution A. saturated solution
- If 10 cm³ of alcohol is dissolved in 90 cm³ of water, it is called:
D. % w/w C. %w/v B. % v/w A. %v/v
- Which one of the following solutions contains more water?
D. 2 M C. 1 M B. 0.5 M A. 0.25 M
- The most common example of corrosion is:
D. Chemical decay C. Rusting of iron B. Rusting of tin A. Rusting of aluminium
- In the redox reaction between Zn and HCl, the oxidizing agent is:
D. Zn C. H⁺ B. Cl⁻ A. H₂
- During the formation of water from hydrogen and oxygen, which of the following does not occur:
B. Hydrogen has oxidized A. Oxygen has reduced
D. Oxygen gains electrons C. Hydrogen behaves as oxidizing agent
- Metals lose their electrons easily because:
D. they are electronegative C. they have electron affinity B. they are electropositive A. good conductors of heat
- Which one is yellow soft metal?
D. silver C. iron B. sodium A. gold
- Reactivity of halogens:
B. increase down the group A. decrease down the group
D. does not change in the group C. is comparable to group 14 of the periodic table

SECTION – I

Q 2. Answer briefly any five parts

5x2 = 10

- Define Boyle’s law
- What is absolute zero?
- Derive that $P_1V_1 = P_2V_2$
- Prove experimentally the Boyle’s law.
- Convert the followings A. -40°C into Kelvin B. 310K into °C
- How evaporation is affected by surface area? (vii) What do you mean by volume/weight %?
- What do you mean by weight/weight %?

Q 3. Answer briefly any five parts

5x2 = 10

- How will you prepare 10%W/W salt solution?
- How can we prepare 1dm³ of 0.1M aqueous solution of KMnO₄.
- How can we prepare one molar solution?
- What formula is used for the preparation of molar solution?
- Why is O₂ necessary for rusting?
- Differentiate between weak and strong electrolyte.
- Define oxidation and reduction in terms of oxygen and hydrogen.
- In electroplating of silver, from where Ag ions come and where they deposit?

Q 4. Answer briefly any five parts

5x2 = 10

- What is relationship between electro positivity and ionization energy?
- Why electro positivity decreases from left to right in a period?
- How electro positivity depends upon size and nuclear charge of an atom?
- Why ionization energies of alkaline earth metals are higher than alkali metals?
- Why silver and gold are least reactive?
- Can pure gold be used for making ornaments? If not why?
- How can you prove with an example that conversion of an ion to an atom is an oxidation process?
- How can you explain, that $Al \rightarrow Al^{3+} + 3e^-$ is oxidation in terms of increase of oxidation number?

SECTION – II Note: Attempt any two questions

9x2 = 18

Q 5. (a) State Charles’s Law and describe it mathematically & verify it experimentally. 5

(b) Discuss the electrolysis of water. 4

Q 6. (a) What is vapour pressure? Discuss the factors affecting the vapour pressure. 5

(b). Explain, how dilute solutions are prepared from concentrated solutions? 4

Q 7. (a) Describe the rules with suitable examples for assigning the oxidation state 5

(b)What is molarity and give its formula to prepare molar solution? 4