

Note: You have four choices for each objective type question as A, B, C and D. The choice which you think is correct, fill that circle in front of that question number with marker or pen. Cutting or filling two or more circles will result in zero mark in that question.

1. Mark the correct statement.

- (A) metallic character increases along a period (B) metallic character increases down the group
(C) metallic character decreases down the group (D) metallic character remain the same in down the group.

2. Which element is deposited at the cathode during electrolysis of brine in Nelson cell.

- (A) H_2 (B) Na (C) Cl_2 (D) O_2

3. Aluminium oxide is

- (A) acidic oxide (B) basic oxide (C) amphoteric oxide (D) neutral oxide

4. Which catalyst is used in the contact process for the manufacture of H_2SO_4 ?

- (A) Fe_2O_3 (B) V_2O_5 (C) SO_3 (D) Ag_2O

5. Which one is the strongest acid?

- (A) $HClO$ (B) $HClO_2$ (C) $HClO_3$ (D) $HClO_4$

6. Which of the following is typical transition element?

- (A) Sc (B) Y (C) Ra (D) CO

7. A double bond consists of

- (A) two sigma bond (B) one sigma and one pi bond (C) One sigma and two pi bond (D) two pi bonds

8. β , β' - dichloro ethylsulphide is known as

- (A) mustard gas (B) laughing gas (C) phosgene gas (D) bio-gas

9. Benzene cannot undergo the reaction of type:

- (A) substitution (B) addition (C) oxidation (D) elimination

10. Elimination bimolecular reaction involves:

- (A) first order kinetics (B) second order kinetics (C) 3rd order kinetics (D) zero order kinetics

11. Alcohol obtained by the fermentation process never exceeds beyond:

- (A) 14 % (B) 10 % (C) 16 % (D) 95 %

12. Ketones are prepared by the oxidation of

- (A) primary alcohol (B) secondary alcohol (C) tertiary alcohol (D) formaldehyde

13. Acetamide is prepared by heating

- (A) ammonium acetate (B) methyl cyanide (C) of phthalic acid (D) of ethyl acetate

14. Which one of the following binds blood haemoglobin more strongly than oxygen.

- (A) CO (B) CO_2 (C) NO_2 (D) SO_2

15. Which one of these polymers is a synthetic polymer?

- (A) animal fat (B) starch (C) cellulose (D) polyester

16. Ammonium nitrate fertilizers is not used for which of the following crops.

- (A) cotton (B) wheat (C) sugarcane (D) paddy rice

17. Newspaper can be recycled again and again by how many times?

- (A) 02 (B) 05 (C) 04 (D) 03

SUBJECTIVE

Note:- Section I is compulsory. Attempt any 3 questions from Section II.

(Section – I)

2. Write short answers to any Eight parts.

(8 x 2 = 16)

- Why Na_2O is basic while SO_3 is acidic in nature.
- Give essential features of period four (4) in modern periodic table.
- Li_2CO_3 decompose on heating but Na_2CO_3 is stable towards heat, why?
- What is chemical garden?
- Aluminium sheets are said to be corrosion free at normal conditions. Why?
- What is meant by vitreous silica?
- How does sulphur occur in nature?
- Complete and balance the given equations. (a) $HNO_2 + (NH_2)_2CO \rightarrow ?$ (b) $NO_{2(g)} + P_{(s)} \rightarrow ?$
- How does nitrogen differ from other elements of its group? (write four points)
- What is meant by chemical oxygen demand?
- What is leachate?
- Why 1- Butene does not show cis-trans isomerism, but 2- Butene show isomerism?

3. Write short answers to any Eight parts.

(8 x 2 = 16)

- What is chromyl chloride test? Give its chemical reaction.
- What are interstitial compounds?
- How will you convert ethene into formaldehyde?
- Write reaction mechanism for the preparation of ethane by Kolbe's process.
- How will you convert benzene into orthochloronitro-benzene?
- How will you convert methane into ethanoic acid?
- How will you distinguish between an alcohol and a phenol?
- How will you prepare ethanaloxyime from an aldehyde?
- How ethyl iodide is prepared from diethyl ether?
- Write structural formulae of following compounds. (i) Benzyl alcohol (ii) phenyl hydrazine
- How acetic acid is converted into ethanol?
- How will you convert acetic acid into methane?

4. Write short answers to any Six parts.

(6 x 2 = 12)

- What are thermosetting polymers?
- Define homopolymer with an example.
- What are nucleosides and nucleotides?
- What are macronutrients?
- What do you mean by prilling of urea?
- Discuss the reactions that take place during first 24 hours by the "setting of cement".
- What is available chlorine? How is it produced?
- What are Freons and Teflons?
- How are halogen acids ionized in water?

Section-II

Note:- Attempt any three (3) questions:

(3 x 8=24)

- What are hydrides? Classify them. Write two properties of any two of them. 4
 - Write four roles of lime in industries. 4
- What is Corrosion? Explain Electrochemical Theory of Corrosion. 4
 - Write note on (i) Hydrosphere (ii) Biosphere 4
- Explain the term Cracking. Write its various types. 4
 - Write Mechanism for (i) Friedel Crafts Alkylation (ii) Nitration of Benzene 4
- Explain acidic nature of alkynes giving at least three examples. 4
 - Write reaction of phenol with (i) HNO_3/Δ (ii) $H_2SO_4(Conc)$ (iii) Br_2 (iv) CH_3COCl 4
- Differentiate between SN^1 and SN^2 reactions. Give four points, each for SN^1 and SN^2 reactions. 4
 - Write a note on oxidation of aldehydes and ketones. 4