

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 in your answer book. Use marker or pen to fill the circles. Cutting or filling up two or more circles will result no mark.

Q.1	Questions	A	B	C	D
1.	Which reagent is used to reduce a carboxylic group to an alcohol?	H_2 / Ni	H_2 / Pt	$NaBH_4$	$LiAlH_4$
2.	Which of the given will have the highest boiling point?	Methanal	Ethanal	Propanal	2-Hexanone
3.	Elimination bimolecular reactions involve:	first order kinetics	second order kinetics	third order kinetics	zero order kinetics
4.	Which compound will have maximum repulsion with H_2O ?	C_6H_6	C_2H_5OH	$CH_3CH_2CH_2OH$	$CH_3 - O - CH_3$
5.	Which of the given compound will react with Tollen's reagent?	$CH_3 - \overset{O}{\parallel} C - H$	$CH_3 - \overset{O}{\parallel} C - CH_3$	$CH_3 - \overset{O}{\parallel} C - OH$	$CH_3 - \overset{O}{\parallel} C - CH_2 - CH_3$
6.	Which compound is the most reactive one?	Benzene	Ethene	Ethane	Ethyne
7.	The presence of a double bond in a compound is the sign of:	saturation	unsaturation	substitution	none
8.	A double bond consists of:	two sigma bonds	one sigma and one pi-bond	one sigma two pi-bonds	two pi-bonds
9.	The strength of binding energy of transition elements depends upon number of:	electron pairs	unpaired electrons	neutrons	protons
10.	Laughing gas is chemically:	NO	N_2O	NO_2	N_2O_4
11.	Which is the strongest acid?	$HClO$	$HClO_2$	$HClO_3$	$HClO_4$
12.	Which of the given element is not present abundantly in earth's crust?	Silicon	Aluminium	Sodium	Oxygen
13.	Chile saltpetre has the chemical formula:	$NaNO_3$	KNO_2	$Na_2B_4O_7$	$Na_2CO_3 \cdot H_2O$
14.	The correct statement is:	Na^+ is smaller than Na atom	Na^+ is larger than Na atom	Cl^- is smaller than Cl atom	Cl^- (ion) and Cl (atom) are equal in size
15.	The chemical formula of Fluorosparg is:	$Ca_5(PO_4)_3F$	CaF_2	Na_3AlF_6	$KCl.MgCl_2.6H_2O$
16.	Phosphorus helps the growth of:	roots	leaves	stem	seed
17.	Acetic acid is manufactured by:	Distillation	Fermentation	Ozonolysis	Esterification

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)
- What is trend of electron affinity from top to bottom in a group?
 - Why the ionic radii of negative ions are larger than the size of their parent atom?
 - Give the advantages of Down's cell for the preparation of sodium metal on commercial scale.
 - BeO is amphoteric in nature. Justify.
 - What is borax bead test?
 - Write down any two uses of boric acid.
 - Give any four uses of Aluminium.
 - Write down the dissimilarities of oxygen with sulphur (any four).
 - Why SO₃ dissolves in H₂SO₄, not in water?
 - Why nitrogen is important for plants? Give two name of nitrogenous fertilizers.
 - Write the reactions involved in preparation of urea fertilizer.
 - Write down the reaction which takes place in 24 hours during setting of cement.
3. Write short answers to any Eight parts. (8 x 2 = 16)
- Why HF is weak acid?
 - Write reactions of chlorine with cold and hot NaOH.
 - What is meant by available chlorine in bleaching powder? Give reaction.
 - Define Corrosion.
 - Why compounds of transition elements show colour?
 - Define Monocyclic and Polycyclic aromatic hydrocarbons.
 - Define Resonance Energy. Give one example.
 - Write the reactions of formaldehyde and acetaldehyde with HCN.
 - Write applications of Iodoform test.
 - How acetic acid is prepared from Grignard's reagent?
 - Write the reactions of Acetic Acid with NaOH and Na₂CO₃.
 - Write four uses of Acetic Acid.
4. Write short answers to any Six parts. (6 x 2 = 12)
- What is catalytic cracking?
 - What is meant by functional group? Write the name of two oxygen containing functional groups.
 - Alkanes are less reactive than Alkenes. Justify.
 - Define Hydroxylation. Give an example.
 - How may Ethene be converted into ethyl alcohol?
 - Define Alkyl Halide. Which is the best method of preparing alkyl halides?
 - Write IUPAC names of the following compounds:
- (a) (CH₃CH₂)₃ CBr (b) $\begin{array}{c} \text{CH}_3 \\ | \\ \text{C}_2\text{H}_5 - \text{CH} - \text{CH} - \text{Br} \\ | \\ \text{C}_2\text{H}_5 \end{array}$
- How primary, secondary and tertiary alcohols are different from each other in structure?
 - Why ethanol has higher boiling point than diethyl ether but less than water?

(SECTION-II)(Each question carries Eight (8) Marks)

5. (a) Justify the position of hydrogen at the top of group I-A by giving any four points of similarities and dissimilarities. 4
- (b) How Lithium shows peculiar behaviour among alkali metals? Mention any eight properties. 4
6. (a) How does Conc. HNO₃ react with the following metals? 4
- (i) Cu (ii) Hg (iii) Sn (iv) Zn
- (b) Explain Electrochemical theory of corrosion. 4
7. (a) Write four various forms of structural isomerism with examples. 4
- (b) Explain Aldol Condensation with mechanism using a suitable example. 4
8. (a) Name the following compounds according to IUPAC system: 4
- (i) (CH₃)₂ C = CH₂ (ii) (CH₃CH₂)₃ CH (iii) HC ≡ C - CH = CH - CH₃ (iv) HC ≡ C - $\begin{array}{c} \text{CH} \\ | \\ \text{CH}_3 \end{array}$ - CH = CH₂
- (b) Give four equations with conditions for the preparation of Alkyl halides from Alcohols. 4
9. (a) Write Friedel-Craft Alkylation reaction with mechanism. 4
- (b) Starting from phenol prepare the following compounds: 4
- (i) Ortho Hydroxybenzyl Alcohol (ii) Para Hydroxybenzyl Alcohol (iii) Bakelite