BOARD OF INTERMEDIATE & SECONDARY EDUCATION, MIRPURKHAS. SINDH.

ثانوی و اعلیٰ ثانوی تعلیمی بورڈ میرپورخاص (سندھ)

Model Paper Class-XII (Chemistry)

Time Allowed: 25 Minutes **Marks: 17**

Q.No.01. Choose The Correct Answer:

(i) **The s-block element forms super oxide when burned in air is:**
A. Li B. Na C. K D. Mg

(ii) **The coordination number of cobalt in $Na_4[Co(C_2O_4)_3]$ is:**
A. 3 B. 4 C. 6 D. 7

(iii) **The type of coal that is hard and high ranked is:**
A. Peat B. Lignite C. Bituminous D. Anthracite

(iv) **Which of the following hydrocarbon is the chief constituent of natural gas?**
A. CH_4 B. C_2H_6 C. C_3H_8 D. C_4H_{10}

(v) **Which of the following molecule possess acyl functional group?**
A. R-CO-X B. $R\text{-}CONH_2$ C. $R\text{-}COO\text{-}CH_3$ D. R-CO-R

(vi) **Ethyl magnesium bromide with carbon dioxide yields.**
A. Methanoic acid B. Ethanoic acid C. Propanoic acid D. Butanoic acid

(vii) **Grignard reagent with ester produces:**
A. Aldehyde B. Carboxylic acid C. Ketone D. Ether

(viii) **Ethanol reacts with PCl_3 to form.**
A. Diethyl ether B. Ethene C. Ethyl chloride D. Ethanoic acid

(ix) **Which of the following alcohols has highest boiling Point**
A. Ethyl alcohol B. n-pentyl alcohol C. Iso-pentyl alcohol D. neo-pentyl alcohol

(x) **Which of the following carbonyl compound is most soluble in water?**
A. Formaldehyde B. Acetaldehyde C. Benzaldehyde D. Acetophenone

(xi) **Which of the following gives silver test with Tollen's reagent?**
A. HCHO B. $CH_3\text{-}O\text{-}CH_3$ C. C_2H_5OH D. CH_3COOH

(xii) **Two molecules of acetic acid on condensation gives:**
A. Ethyl acetate B. Aceticamide C. Acylhalide D. Acetic anhydride

(xiii) **Starch and Sucrose are examples of:**
A. Monosaccharides and Disaccharides B. Disaccharides and Oligosaccharides
C. Polysaccharides and Disaccharides D. Monosaccharides and Polysaccharides

(xiv) **Amino acid units bonded in protein molecule through:**
A. Glycosidic linkage B. Ether linkage C. Peptide linkage D. Hydrogen bridge

(xv) **Ozone depletion in upper atmosphere is mainly caused by:**
A. Sulphur dioxide (SO_2) B. Nitrogen oxides (NOx)
C. Carbon monoxide (CO) D. Chlorofluorocarbons (CFCs)

(xvi) **A hydrocarbon with the molecular formula C_7H_{14} is possibly:**
A. Heptane B. Heptene C. Heptyne D. Hepta diene

(xvii) **The most common compound found in pineapple is:**
A. Acetic acid B. Ethanol C. Acetone D. Ethyl butanoate

Time Allowed: 2.35 Hours **Total Marks: 68**

SECTION – B

Chapter From 01 to 04 **(7 x 3 = 21)**

Q.No.02. Attempt any SEVEN (07) parts. All part carry equal marks.

(i) **(a)** Explain boiling point of halogens increase down the group in the periodic table?
(b) Explain the auto oxidizing and reducing properties of chlorine.

(ii) Write down three properties of beryllium that show its unique behavior in group IIA.

(iii) **(a)** Explain acidity of hydrogen halides increase from HF to HI?
(b) Explain electro-negativities of alkali metals decrease from Li to Cs?

(iv) **(a)** Why do transition elements show variable oxidation states?
(b) Why Cu^{+2} ion is blue but Zn^{+2} is colourless?

(v) **(a)** Write down the effect of pH changes on dichromate equilibrium in water.
(b) Why chromium exists in $4s^1\ 3d^5$ configuration but not in $4s^2\ 3d^4$?

(vi) **(a)** Melting point of d-block elements increase up to middle of the series and then decrease why?
(b) Why transition elements have ability to form alloys?

(vii) **Write the IUPAC names of the following.**

(i) $Na_2\,[Pt(OH)_4]$ (ii) $K_2[Fe(CN)_5NO]$ (iii) $[Zn(NH_3)_4]^{+2}$

(viii) **Write down the balanced chemical equations for the following reactions.**

a) Reaction of conc. nitric acid with copper.
b) Reaction of conc. sulphuric acid with copper.
c) Reaction of potassium permanganate with oxalic acid.

(ix) Write down some examples of products that can be produced using biotechnology?

(x) Define functional group and write the structure of three oxygen containing functional group.

SECTION – C

Chapter From 05 to 13 **(7 x 3 = 21)**

Q.No.03. Attempt any SEVEN (07) parts. All part carry equal marks.

(i) **Complete the following reactions and name the major product formed in each reaction.**

$$\mathbf{H_2SO_4(conc.)\ 170^oC \quad Alcohol, heat}$$

(a) $C_2H_5OH \longrightarrow$ **(b)** $C_2H_5Br + KOH \longrightarrow$ **(c)** $CH_3\text{-}CH{=}CH_2 + HBr \rightarrow$

(ii) **(a)** How can you prepare ethyne from de halogenation of Vicinal dihalide.
(b) How can you prepare acetone by hydration of propyne.

(iii) **Bring about the following conversions.**
a) Toluene to ortho-para nitro benzoic acid **b)** Benzene to m-nitro toluene

(iv) What is Lucas reagent? Describe its use to distinguish between primary, secondary andtertiary alcohol.

(v) Identify each of following with two laboratory tests.
a) Phenol **b)** Alcohol

(vi) **Explain the following with scientific reason.**
a) Boiling point of ether is less than alcohol?
b) Alcohols are more soluble in water than alkane.
c) Ethanol is liquid but ethyl chloride is gas at room temperature?

(vii) How can you define a nucleophile? Write the names of four nucleophiles along with theirtypical reagents.

(viii) How aldehyde and ketones are prepared by ozonolysis of alkene.

(ix) **Write the equation for the reaction of acetaldehyde with the following:**
(a) $K_2Cr_2O_7/H_2SO_4$ **(b)** $LiAlH_4$ **(c)** Zn/Hg/HCl conc.

(x) **Write the natural sources of following carboxylic acids.**
(a) Formic acid **(b)** Acetic acid **(c)** Valeric acid

SECTION – D

Chapter From 01 to 13 **(2 x 13 = 26)**

Note: Attempt any <u>TWO</u> (02) parts. All part carry equal marks.

Q.No.04.

(a) Define electrophilic substitution reaction of benzene. Give the mechanism of halogenation and nitration of benzene. **(07)**

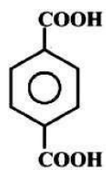
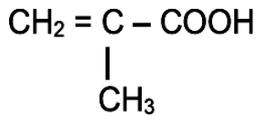
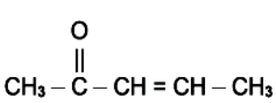
(b) Describe nucleophilic substitution reaction of alkyl halide. Describe mechanisms of SN^1 and SN^2. **(06)**

Q.No.05. **(a)** Describe preparation of sulphuric acid by contact method. **(06)**
(b) Explain the trend of following properties of 3-d series of transition elements. **(07)**

Q.No.06. (a) Write the structure of following organic compounds. **(07)**

(i) Neopentyl iodide **(ii)** Picric acid
(iii) Isopropyl butanoate **(iv)** Ethyl neo-pentyl ether
(v) 3-chloro Benzaldehyde **(vi)** Resorcinol
(vii) α-methyl butyr aldehyde

(b) **Give the IUPAC names of the following organic molecules.** **(06)**

(i)		**(ii)**	
(iii)	**$HC \equiv C - CH(CH_3) - CH = CH_2$**	**(iv)**	**$(CH_3)_2CBrCHO$**
(v)		**(vi)**