FBD-12-G1-19

Roll No. : _____

Objective Paper Code **8487**

Intermediate Part Second (New Scheme)

CHEMISTRY (Objective) GROUP - I

Time: 20 Minutes Marks: 17

Q.No.1 You have four choices for each objective type question as A, B, C and D. The choice which you think is correct, fill the relevant circle in front of that question number on computerized answer sheet. Use marker or pen to fill the circles. Cutting or filling two or more circles will result in zero marks in that question. Attempt as many questions as given in objective type question paper and leave other circles blank.

S.#	Questions	A	B	C	D
1	The benzene molecule contains:	One double bond	Two double bonds	Three double bonds	Delocalized π-electron charge
2	Formula of chloroform is:	$CH_3C\ell$	$CC\ell_4$	$CH_2C\ell_2$	$CHC\ell_3$
3	The state of hybridization of carbon atom in methane is:	sp^3	sp^2	sp	dsp^2
4	Group VIB of transition elements contains:	Zn , Cd , Hg	Cr, Mo, W	Fe , Ru, Os	Mn, Te, Re
5	Chlorine heptaoxide ($C\ell_2O_7$) reacts with water to form:	Hypochlorous acid	Chloric acid	Perchloric acid	Chlorine and oxygen
6	The brown gas formed when metal reduces HNO_3 to:	NO_2	NO	N_2O_3	N_2O_5
7	Which element belongs to group IVA of periodic table?	Barium	Iodine	Lead	Oxygen
8	Which ion will have maximum value of heat of hydration?	Na^+	Cs^{+2}	Ba^{+2}	Mg^{+2}
9	Keeping in view the size of atoms which order is correct?	Mg > Sr	Ba > Mg	Lu > Ce	$C\ell$ > I
10	Peroxyacetyl nitrate (PAN) is an irritant to human beings and affects:	Eyes	Ears	Stomach	Nose
11	Which three elements are needed for the healthy growth of plants?	N, S, P	N, Ca, P	N, P, K	N, K, C
12	Vegetable oils are:	Glycerides of un-saturated fatty acids	Un-saturated fatty acids	Glycerides of saturated fatty acids	Essential oils obtained from plants
13	Which is a synthetic polymer?	Animal fat	Starch	Cellulose	Polyester
14	A carboxylic acid contains:	A hydroxyl group	A carboxyl group	A hydroxyl and a carboxyl group	A carboxyl and an aldehyde group
15	The carbon atom of a carbonyl group is:	sp hybridized	sp^2 hybridized	sp^3 hybridized	dsp^2 hybridized
16	Ethanol can be converted into ethanoic acid by:	Fermentation	Hydration	Hydrogenation	Oxidation
17	Grignard reagent is reactive due to:	The presence of halogen atom	The presence of Mg atom	The polarity of C-Mg bond	The presence of alkyl group

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FBD-2-G1-19

Intermediate Part Second (New Scheme) Roll No. _____

CHEMISTRY (Subjective) GROUP - I

Time: 02:40 Hours Marks: 68

SECTION – I

2. **Write short answers to any EIGHT parts.** 16

(i) Why the second value of electron affinity is usually shown with a positive sign?
(ii) What are amphoteric oxides? Give two examples.
(iii) Why 2% gypsum is added in grinding during the process of manufacturing of cement?
(iv) What is the effect of heat on ortho boric acid?
(v) Write any two points of importance of oxides of lead in paints.
(vi) Write formulas of (a) Litharge (b) Red lead.
(vii) Write two points of difference between red and white phosphorus.
(viii) Write two reactions to show that H_2SO_4 acts as oxidizing agent.
(ix) How does P_2O_3 react with water in cold and hot state?
(x) Define macronutrients of fertilizer with suitable examples.
(xi) What is the role of digestion step in the manufacture of paper?
(xii) Write conditions which are required for the formation of smog.

3. **Write short answers to any EIGHT parts.** 16

(i) Write two important uses of organic chemistry in daily life.
(ii) How does propyne react with (a) $AgNO_3$ / NH_4OH (b) $Cu_2C\ell_2$ / NH_4OH
(iii) How will you bring about the following conversion? Methane to Ethane
(iv) Write the structures of (a) Benzene (b) Naphthalene (c) Toluene (d) Biphenyl.
(v) What is meant by the terms (a) Aromatic (b) Halogenation?
(vi) Define (a) Nucleophile (b) Electrophile.
(vii) Write equation showing reaction of ethyl magnesium bromide with water.
(viii) Write the formulas of (a) 1-Butanol (b) 2-Butanol.
(ix) Why ethyl alcohol is liquid while methyl chloride is a gas?
(x) What is the difference between essential and non-essential amino acids?
(xi) Write the structural formulas of (a) Glycine (b) Alanine.
(xii) What is glacial acetic acid? Write its formula.

4. **Write short answers to any SIX parts.** 12

(i) Write balanced chemical reactions of Conc $\cdot H_2SO_4$ with (a) Sodium bromide (B) Sodium chloride.
(ii) Give balanced chemical reaction of chlorine with cold dilute sodium hydroxide solution.
(iii) Which is stronger acid? $HC\ell O_3$ or $HBrO_3$ and why?
(iv) Define paramagnetism. Which two ions have the strongest paramagnetic behaviour?
(v) How is formaldehyde prepared in laboratory? Give its chemical reaction with necessary conditions.
(vi) Give a reaction which is used to protect a carbonyl group against strong alkaline oxidizing agents.
(vii) Define homopolymer with an example.
(viii) What is the difference between fats and oils?
(ix) Give the role of DNA and RNA in life.

SECTION – II Attempt any THREE questions. Each question carries 08 marks.

5. (a) What are the improvements made in the Mendeleev's Period Table? 04
(b) Mention the properties of beryllium in which it does not resemble with its own family. 04

6. (a) How steel is manufactured by Bessemer's Process? 04
(b) What is acid rain? How does it affect our environment? 04

7. (a) How will you prepare ethane by Kolbe's method and from Grignard reagent? 04
(b) Describe nitration and bromination of benzene with mechanism. 04

8. (a) Starting from ethene, outline the reactions for the preparation of the following compounds. 04
(i) Ethyl dibromide (ii) Ethyne (iii) Ethane (iv) Ethylene glycol
(b) How can ethanol be prepared from (i) Molasses (ii) Starch ? 04

9. (a) Write four important points of difference between S_N1 and S_N2 mechanism 04
(b) Explain with mechanism the addition of sodium bi-sulphite to acetone. Write utility of this reaction. 04

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FBD-12-G2-19

Roll No. : _____

Objective
Paper Code
8488

Intermediate Part Second (New Scheme)

CHEMISTRY (Objective) GROUP - II

Time: 20 Minutes Marks: 17

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Q.No.1 **You have four choices for each objective type question as A, B, C and D. The choice which you think is correct, fill the relevant circle in front of that question number on computerized answer sheet. Use marker or pen to fill the circles. Cutting or filling two or more circles will result in zero marks in that question. Attempt as many questions as given in objective type question paper and leave other circles blank.**

S.#	Questions	A	B	C	D
1	Benzene cannot undergo:	Substitution reactions	Addition reactions	Oxidation reactions	Elimination reactions
2	Vinyl acetylene combines with HCℓ to form:	Polyacetylene	Benzene	Chloroprene	Divinyl acetylene
3	In t-butyl alcohol, the tertiary carbon is bonded to:	Two hydrogen atoms	Three hydrogen atoms	One hydrogen atom	No hydrogen atom
4	Which is a typical transition metal?	Sc	Y	Ra	Co
5	Which halogen occurs naturally in positive oxidation state?	Fluorine	Chlorine	Bromine	Iodine
6	Which species has the maximum number of unpaired electrons?	O_2	O_2^+	O_2^-	O_2^{2-}
7	Which element is not present abundantly in earth's crust?	Silicon	Aluminium	Sodium	Oxygen
8	Which sulphate is not soluble in water?	Sodium sulphate	Potassium sulphate	Zinc sulphate	Barium sulphate
9	Mark the correct statement:	All the lanthanides are present in the same group	All the halogens are present in the same period	All the alkali metals are present in the same group	All the noble gases are present in the same period
10	In the purification of potable water the coagulant used is:	Nickle sulphate	Copper sulphate	Barium sulphate	Alum
11	Micro-nutrients are required in quantity ranging from:	4 - 40 g	6 - 200 g	6 - 200 kg	4 - 40 kg
12	Which is a monosaccharide?	Fructose	Sucrose	Starch	Cellulose
13	The reaction between fat and NaOH is called:	Esterification	Hydrogenolysis	Fermentation	Saponification
14	Which is not a fatty acid?	Propanoic acid	Acetic acid	Phthalic acid	Butanoic acid
15	Which of the given compounds will not give iodoform test on treatment with I_2/ NaOH ?	Acetaldehyde	Acetone	Butanone	3-pentanone
16	Which compound will have maximum repulsion with H_2O ?	C_6H_6	C_2H_5OH	$CH_3CH_2CH_2OH$	$CH_3 - O - CH_3$
17	Grignard reagent is reactive due to:	The presence of halogen atom	The presence of Mg atom	The polarity of C-Mg bond	The polarity of Mg-X bond

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Intermediate Part Second (New Scheme) Roll No. _____

CHEMISTRY (Subjective) GROUP - II FBD-R-G2-19

Time: 02:40 Hours Marks: 68

SECTION – I

2. **Write short answers to any EIGHT parts.** 16

(i) How do you justify the position of hydrogen at the top of group IA?
(ii) Why does metallic character increase from top to bottom in a group of metals?
(iii) Write any four uses of lime in industries.
(iv) Write balanced equations for the reactions of Aℓ with (a) H_2SO_4 (b) NaOH
(v) How does borax serve as a water softening agent?
(vi) Give the names and formulae of different acids of boron.
(vii) Write balanced equations for the reaction of orthophosphoric acid with NaOH.
(viii) NO_2 is a strong oxidizing agent. Prove the truth of this statement giving examples.
(ix) Complete and balance the given chemical equations. (a) $P + NO \rightarrow$ (b) $HNO_3 + HI \rightarrow$
(x) What is meant by setting of cement? Discuss the reactions taking place in first 24 hours.
(xi) What are the prospects of paper industry in Pakistan?
(xii) Explain the process of incineration of industrial waste.

3. **Write short answers to any EIGHT parts.** 16

(i) What is the difference between tautomerism and metamerism?
(ii) What is raney nickel? Write its function.
(iii) Convert CH_4 to $H - COOH$
(iv) Write name of two groups which are called as meta directing group and two groups which are called as ortho, para-directing groups.
(v) Write mechanism for sulphonation of benzene.
(vi) Convert C_2H_5Br to tetra ethyl lead (TEL).
(vii) Convert C_2H_5Br to $(C_2H_5)_2NH$
(viii) Why absolute alcohol cannot be prepared by fermentation process?
(ix) Draw structure of (a) methyl-n-propyl ether (b) methoxy benzene.
(x) Write structure of (a) alanine (b) valine.
(xi) What is ninhydrin test?
(xii) Point out difference between protein and polypeptide.

4. **Write short answers to any SIX parts.** 12

(i) How are the halogen acids ionized in water?
(ii) What is bleaching powder? Give its two uses.
(iii) Describe chemical reactions of bleaching powder with (a) HI (b) CO_2
(iv) How does the process of galvanizing protect iron from rusting?
(v) Give four uses of acetaldehyde.
(vi) How will you distinguish between ethanal and propanal?
(vii) What are thermoplastic polymers? Give two examples.
(viii) What are lipids? Give their types.
(ix) Define saponification number and iodine number.

SECTION – II Attempt any THREE questions. Each question carries 08 marks.

5. (a) Give two similarities and two dissimilarities of hydrogen with elements of group IA. 04
(b) Write any eight uses of lime in industry. 04

6. (a) Describe rules for naming the coordination complexes and give one example. 04
(b) Describe air pollution briefly. 04

7. (a) What is cracking? Discuss its two types. 04
(b) Write the classification of aromatic hydrocarbons giving one example of each. 04

8. (a) Describe Kolbe's method for the preparation of ethyne with reaction mechanism. 04
(b) Describe Lucas test for the identification of primary, secondary and tertiary alcohols with suitable chemical reactions. 04

9. (a) Differentiate between S_N1 and S_N2 reactions. 04
(b) Write one laboratory and one industrial method for the preparation of acetaldehyde. 04

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