

Roll No. of Candidate : \_\_\_\_\_

**CHEMISTRY**

**Intermediate Part-II , Class 12<sup>th</sup> ( 1<sup>st</sup>A 424-II) Paper: II Group - I**

**Time: 20 Minutes -**

**OBJECTIVE ..... Code: 8483 GUG-1-24 Marks: 17**

**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. Use marker or pen to fill the circles. Cutting or filling two or more circles will result in zero mark in that question.

1. The main pollutant of leather tanneries in the waste water is due to salt of  
(A) Lead (B) Chromium (VI) (C) Copper (D) Chromium (III)
2. One of the following will have the highest boiling point  
(A) methanal (B) ethanal (C) propanal (D) 2-hexanone
3. The normal amount of overhead Ozone is about  
(A) 150 DU (B) 250 DU (C) 350 DU (D) 450 DU
4. Ethanol can be converted into ethanoic acid by  
(A) Hydrogenation (B) Hydration (C) Oxidation (D) Fermentation
5. Phosphorus helps the growth of  
(A) root (B) leaf (C) stem (D) seed
6. When ethanal ( $\text{CH}_3 - \overset{\text{O}}{\parallel}{\text{C}} - \text{H}$ ) is made to react with ethyl Magnesium Bromide followed by acid hydrolysis, the product formed is  
(A) 1-propanol (B) 2-propanol (C) 1-butanol (D) 2-butanol
7. Which one of the following elements is not present in all proteins?  
(A) Sulphur (B) Carbon (C) Hydrogen (D) Nitrogen
8. The anhydride of  $\text{HClO}_4$  is  
(A)  $\text{ClO}_3$  (B)  $\text{ClO}_2$  (C)  $\text{Cl}_2\text{O}_5$  (D)  $\text{Cl}_2\text{O}_7$
9. Which reagent is used to reduce a Carboxylic group to an alcohol?  
(A)  $\text{H}_2/\text{Ni}$  (B)  $\text{H}_2/\text{Pt}$  (C)  $\text{NaBH}_4$  (D)  $\text{LiAlH}_4$
10. In ring test, the colour of  $\text{FeSO}_4 \cdot \text{NO}$  is  
(A) Brown (B) Red (C) Green (D) Black
11. The conversion of n-hexane into benzene by heating in the presence of Pt is called  
(A) Isomerization (B) Aromatization (C) de-alkylation (D) Re-arrangement
12. The chief ore of aluminium is  
(A)  $\text{Na}_3\text{AlF}_6$  (B)  $\text{Al}_2\text{O}_3 \cdot 2\text{H}_2\text{O}$  (C)  $\text{Al}_2\text{O}_3$  (D)  $\text{Al}_2\text{O}_3 \cdot \text{H}_2\text{O}$
13.  $\beta$ - $\beta'$ -dichloroethyl sulphide is commonly known as  
(A) Laughing gas (B) Bio-gas (C) Mustard gas (D) Phosgene gas
14. One of the following is not an alkali metal  
(A) Francium (B) Caesium (C) Rubidium (D) Radium
15. The state of hybridization of Carbon atom in Methane is  
(A)  $\text{sp}^3$  (B)  $\text{sp}^2$  (C) sp (D)  $\text{dsp}^2$
16. Select the two elements which are present in third period  
(A) Li, Be (B) Na, Mg (C) K, Ca (D) Rb, Sr
17. One of the following is a typical transition metal  
(A) Sc (B) Y (C) Co (D) Ra

Note: Section I is compulsory. Attempt any THREE (3) questions from Section II.

## SECTION - I

GUP-1-24

## 2. Write short answers to any EIGHT questions.

(2 x 8 = 16)

- Why the ionic radii of negative ions are larger than the size of their parent atoms? Give example.
- Give two defects in Mendeleev's periodic table.
- Why transition elements have variable oxidation states?
- KMnO<sub>4</sub> acts as oxidizing agent? Justify with two examples.
- Write the chemistry of setting of cement in first twenty four hours.
- Alkali metals give ionic hydrides. Give reason.
- Write the formula of (a) Asbestos (b) Halite
- What is the excellent method to prepare Alkyl Iodide?
- What is terpolymer? Give one example.
- What are the monosaccharides? Give one example.
- Compare the compound protein with derived protein.
- How Grignard reagent reacts with "HCHO"?

## 3. Write short answers to any EIGHT questions.

(2 x 8 = 16)

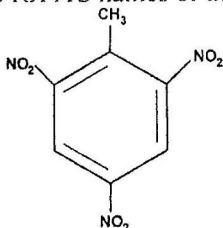
- What is aqua regia? How does it dissolve gold?
- NO<sub>2</sub> is oxidizing agent. Prove it with two suitable examples.
- Arrange the oxidizing power of following with reason: F<sub>2</sub>, Cl<sub>2</sub>, Br<sub>2</sub>, I<sub>2</sub>
- Why I<sub>2</sub> is solid while F<sub>2</sub> is gas?
- Define functional group with any two examples.
- Differentiate between metamerism and position isomerism, with suitable examples.
- How oxalic acid is prepared from acetylene?
- Why ethyne is less reactive than ethene?
- Why alkanes are called as paraffins?
- What are leachate?
- Define Biochemical Oxygen demand.
- What is lithosphere?

## 4. Write short answers to any SIX questions.

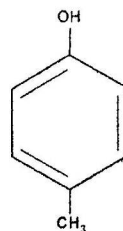
(2 x 6 = 12)

- How to prepare borax from colemanite?
- Give two important uses of silicates.
- What is white lead? Give its use.
- Write IUPAC names of the following molecules

a)



b)



(Turn Over)

- v. Ethyl alcohol is a liquid while methyl chloride is a gas, justify it.
- vi. Give the reaction of phenol with:  
(a) Zn (b) HNO<sub>3</sub>
- vii. How acetaldehyde reacts with the following reagents?  
(a) HCN (b) I<sub>2</sub>/NaOH
- viii. What is vinegar and give its use?
- ix. Write down the mechanism of reaction between acetic acid and methanol.

**SECTION - II**

5. (a) What is hydration energy? Give one example. Discuss its variation in groups and periods (1+1+2=4) of periodic table. (4)
- (b) Write down any eight uses of lime in industry. (4)
6. (a) Give the reactions of Bleaching powder with  
i. dil H<sub>2</sub>SO<sub>4</sub> ii. HCl  
iii. NH<sub>3</sub> iv. CO<sub>2</sub> (4)
- (b) Describe the process of digestion of paper pulp in Neutral Sulphite chemical process. (4)
7. (a) What are organic compounds? Describe the following terms (give one example for each). (4)
- i. Alicyclic Compounds  
ii. Aromatic Compounds  
iii. Heterocyclic Compounds
- (b) Write down the chemical reaction of Ethyl Magnesium Bromide with CO<sub>2</sub>, HCHO, Acetone and Epoxide. (4)
8. (a) Explain acidic nature of alkyne in detail by giving two examples. (4)
- (b) What is aldol condensation? Give its mechanism. (4)
9. (a) Discuss catalytic oxidation of Benzene. (4)
- (b) How ethers are prepared from following? (4)
- i. Williamsons Synthesis ii. Ag<sub>2</sub>O

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**CHEMISTRY**

**Intermediate Part-II , Class 12<sup>th</sup> ( 1<sup>st</sup>A 424- IV ) Paper: II Group – II**

**Time: 20 Minutes**

**OBJECTIVE ..... Code: 8488 GUT-224 Marks: 17**

**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. Use marker or pen to fill the circles. Cutting or filling two or more circles will result in zero mark in that question.

1. Which one of the following compounds is most reactive?  
(A) Benzene (B) Ethene (C) Ethane (D) Ethyne
2. Which one of the following is a non-typical transition element?  
(A) Cr (B) Mn (C) Zn (D) Fe
3.  $\beta$ - $\beta'$ -dichloroethyl sulphide is commonly known as  
(A) Laughing gas (B) Bio-gas (C) Phosgene gas (D) Mustard gas
4. Which three elements are needed for the healthy growth of plants?  
(A) N, S, P (B) N, Ca, P (C) N, P, K (D) N, K, C
5. The reaction between fat and NaOH is called  
(A) Esterification (B) Hydrogenolysis (C) Fermentation (D) Saponification
6. Which compound is more soluble in water?  
(A)  $C_2H_5OH$  (B)  $C_6H_5OH$  (C)  $CH_3COCH_3$  (D) n-hexanol
7. Which one of the following ions has maximum value of heat of hydration?  
(A)  $Na^+$  (B)  $Cs^{2+}$  (C)  $Ba^{2+}$  (D)  $Mg^{2+}$
8. Hydrogen bond is the strongest between the molecules of  
(A) HF (B) HCl (C) HBr (D) HI
9. Tincal is a mineral of  
(A) Al (B) B (C) Si (D) C
10. The amount of Ozone in the atmosphere is expressed in units  
(A) KJ (B) KJ/mole (C) DU (D) N
11. The solution of which acid is used for seasoning of food?  
(A) Formic acid (B) Acetic acid (C) Benzoic acid (D) Butanoic acid
12. The state of hybridization of Carbon atom in Methane is  
(A)  $sp^3$  (B)  $sp^2$  (C) sp (D)  $dsp^2$
13. Peroxyacetyl nitrate (PAN) is an irritant to human beings and it affects  
(A) Eyes (B) Ears (C) Stomach (D) Nose
14. Choose the gas which is obtained by the reaction of Ethyl alcohol with conc.  $H_2SO_4$   
(A) CO (B)  $CO_2$  (C)  $C_2H_2$  (D)  $C_2H_4$
15. Select the two normal elements present in sixth period  
(A) K, Ca (B) Rb, Sr (C) Cs, Ba (D) La, Hf
16. Cannizzaro's reaction is not given by  
(A) Formaldehyde (B) Acetaldehyde  
(C) Benzaldehyde (D) Trimethylacetaldehyde
17. When water (H – OH) is made to react with Ethyl Magnesium Bromide, the product formed is  
(A)  $CH_2 = CH_2$  (B)  $HC \equiv CH$  (C)  $CH_3 - CH_3$  (D)  $CH_4$

**CHEMISTRY**Intermediate Part-II, Class 12<sup>th</sup> (1<sup>st</sup>A 424) Paper: II

Group – II

Time: 2:40 Hours

SUBJECTIVE

G.U.J-2-24

Marks: 68

Note: Section I is compulsory. Attempt any THREE (3) questions from Section II.

**SECTION – I****2. Write short answers to any EIGHT questions.**

(2 x 8 = 16)

- i. Why diamond is non-conductor and graphite is fairly a good conductor?
- ii. Write the names of families in periodic table.
- iii. Why 'd' and 'f' block elements are called transition elements?
- iv. How  $\text{KMnO}_4$  and  $\text{K}_2\text{Cr}_2\text{O}_7$  react with  $\text{H}_2\text{S}$ ?
- v. Write the chemistry of setting of cement in between 1 – 7 days.
- vi. Justify that  $\text{BeO}$  is amphoteric in nature.
- vii. What will happen when Magnesium reacts with (i)  $\text{H}_2$  (ii)  $\text{N}_2$
- viii. Starting from primary alkyl halide, prepare ethyl alcohol.
- ix. What is degree of polymerization?
- x. What are the oligosaccharides? Give one example.
- xi. What do you mean by denaturation of protein?
- xii. How does Grignard reagent react with  $\text{CO}_2$ ?

**3. Write short answers to any EIGHT questions.**

(2 x 8 = 16)

- i. Write down the structures of  $\text{N}_2\text{O}_3$  and  $\text{NO}_2$ .
- ii. Why the elements of group VI A other than Oxygen show more than two oxidation states?
- iii. Write down any four uses of bleaching powder.
- iv. Define disproportionation reaction with an example.
- v. Define sp hybridization with an example.
- vi. How wood is converted into coal? Give its equation too.
- vii. What is Wolf-Kishner's reduction? Give reaction.
- viii. How is  $\text{PCl}_3$  produced from  $\text{SOCl}_2$ ?
- ix. How chloroprene is prepared from acetylene? Give reaction, also.
- x. How aeration is used for purification of  $\text{H}_2\text{O}$ ?
- xi. What is acid rain? How does it affect on aquatic life?
- xii. How smog is produced? Write down its conditions of formation.

**4. Write short answers to any SIX questions.**

(2 x 6 = 12)

- i. What is the action of an aqueous solution of borax on litmus?
- ii. Give any two uses of boric acid.
- iii. How and under what conditions does Aluminium react with the following :  
(a) Halogens (b) Alkalies
- iv. What is meant by the terms : (a) Nitration (b) Halogenation
- v. Why Ethanol has higher boiling point than diethyl ether?

(Turn Over)

- vi. How will you distinguish between methanol and ethanol?
- vii. Give the mechanism of addition of HCN to acetone.
- viii. How to prepare acetic acid from ethyne?
- ix. What are zwitter ions?

**SECTION – II**

- 5. (a) What are hydrides? Explain types of hydrides with their properties. (4)
- (b) What is the role of lime in agriculture and ceramic industries? (4)
- 5. (a) Write down any eight applications of noble gases in daily life. (4)
- (b) What is significance of potassium fertilizers in plant growth? Explain the manufacturing of  $\text{KNO}_3$  on industrial scale. (4)
- 7. (a) Explain any four types of structural isomerism by giving one example of each. (4)
- (b) What are alkyl halides? How are the alkyl halides prepared from alcohol by three different reactions? (4)
- 8. (a) Write a note on photochemical halogenation of methane. (4)
- (b) Describe the Reduction reactions of Carbonyl Compounds with following reagents: (4)
  - i.  $\text{NaBH}_4/\text{H}_3\text{O}^+$
  - ii.  $\text{Ni}/\text{H}_2$(Give two reactions for each)
- 9. (a) What is Kekule's Structure of Benzene? How did he support his theory? (1+3=4)
- (b) How will you prepare phenol from the following? (4)
  - i. Chlorobenzene
  - ii. Sodium salt of Benzene Sulphonic Acid