

Time :	20 Minutes	Inter ( Part II )	Group Ist
Marks :	17	Session (2015 -17) to (2017 - 19)	

Note : Four possible choices A , B , C , D to each question are given. Which choice is correct fill that circle in front of that Question No. Use Marker or Pen to fill the circles. Cutting or filling two or more circles will result in Zero Mark in that Question.

Q.No.1	Mark the correct statement :
(1)	(A) $\text{Na}^+$ is smaller than Na atom (B) $\text{Na}^+$ is larger than Na atom. (C) $\text{Cl}^-$ is smaller than Cl atom (D) $\text{Cl}^-$ (ion) and Cl (atom) are equal in size
(2)	Which one of the following does not belong to Alkaline earth metals : (A) Be (B) Ra (C) Ba (D) Rn
(3)	Which metal is used in the Thermite Process because of its reactivity : (A) Iron (B) Copper (C) Aluminium (D) Zinc
(4)	Laughing Gas is chemically : (A) NO (B) $\text{N}_2\text{O}$ (C) $\text{NO}_2$ (D) $\text{N}_2\text{O}_4$
(5)	Which one of the given is the strongest Acid : (A) HClO (B) $\text{HClO}_2$ (C) $\text{HClO}_3$ (D) $\text{HClO}_4$
(6)	Coordination Number of Pt in $[\text{PtCl}(\text{NO}_2)(\text{NH}_3)_4]\text{SO}_4$ is : (A) 2 (B) 4 (C) 1 (D) 6
(7)	The state of Hybridization of Carbon in Methane is : (A) $\text{Sp}^3$ (B) $\text{Sp}^2$ (C) Sp (D) $\text{dSp}^2$
(8)	Synthetic Rubber is made by Polymerization of : (A) Chloroform (B) Acetylene (C) Divinyl Acetylene (D) Chloroprene
(9)	During Nitration of Benzene , the active Nitrating agent is : (A) $\text{NO}_3$ (B) $\text{NO}_2^+$ (C) $\text{NO}_2^-$ (D) $\text{HNO}_3$
(10)	In Primary Alkyl Halides , the Halogen Atom is attached to a Carbon which is further attached to : (A) Two Carbon Atoms (B) Three Carbon Atoms (C) One Carbon Atom (D) Four Carbon Atoms
(11)	Which Compound is called a Universal Solvent : (A) $\text{H}_2\text{O}$ (B) $\text{CH}_3\text{OH}$ (C) $\text{C}_2\text{H}_5\text{OH}$ (D) $\text{CH}_3-\text{O}-\text{CH}_3$
(12)	The Carbon of Carbonyl Group is : (A) Sp Hybridized (B) $\text{Sp}^2$ Hybridized (C) $\text{Sp}^3$ Hybridized (D) $\text{dSp}^2$ Hybridized
(13)	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) $\text{LiAlH}_4$
(14)	Which of these Polymers is a Synthetic Polymer : (A) Animal Fat (B) Starch (C) Cellulose (D) Polyester
(15)	Which one of the following elements is present in all the proteins : (A) Cl (B) Cu (C) N (D) Al
(16)	Ammonium Nitrate fertilizer is not used for which crop : (A) Cotton (B) Wheat (C) Sugar (D) Paddy Rice
(17)	The main pollutant of Leather Tanneries in waste water is the salt of : (A) Lead (B) Chromium (VI) (C) Copper (D) Chromium (III)

B



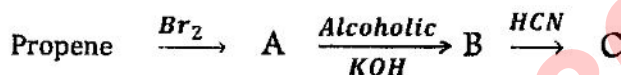
Make Diagram where necessary.

Part - I

22 x 2 = 44

- Q.No.2
- The Oxidation States vary in a Period but remain almost constant in a group. Give reason.
  - Ionic Character of Halides decreases from left to the right in a period. Give reason.
  - What happened when : (i) Lithium Carbonate is Heated (b) Lithium Hydroxide is heated to red.
  - $\text{CO}_2$  is non-polar in nature. Explain.
  - Write formula of White Lead and write its one use.
  - How and under what conditions does Aluminium react with Oxygen and Hydrogen?
  - $\text{SO}_3$  is dissolved in  $\text{H}_2\text{SO}_4$  and not in hot water. Give reason.
  - How does Nitrogen is different from other elements of its group?
  - Give the advantage of Contact Process for the manufacture of  $\text{H}_2\text{SO}_4$ .
  - Define Cement.
  - What is Prilling in Urea manufacturing?
  - Oil Spillage affects the marine life. Justify.

- Q.No.3
- Describe the importance of Wohler's Work in the development of Organic Chemistry.
  - Write down structural formula of product formed when 1-butene reacts with  $\text{Br}_2$  in  $\text{CCl}_4$ .
  - Identify A, B and C in the following reaction :



- Give Products and necessary conditions for the following reactions :
  - Phenol with Zn
  - Benzene with  $\text{SO}_3$
- How will you prepare p-Nitrochloro Benzene from Benzene?
- Give four characteristics of  $\text{S}_{\text{N}}2$  reactions in Alkyl Halides.
- Give reactions and conditions to convert Ethyl Bromide into : (a) Ethyl Alcohol (b) Ethyl Cyanide
- What do you mean by Denaturing of Alcohol?
- How will you distinguish between an Alcohol and a Phenol by a chemical reaction?
- Give the reactions of Acetic Acid with : (a) NaOH (b)  $\text{SOCl}_2$
- Write the structural formulae of : (a) Oxalic Acid (b) Malonic Acid
- Describe mechanism of reaction of Acetic Acid with Ammonia.

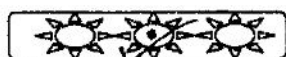
- Q.No.4
- What is Iodized Salt?
  - Why has Iodine Metallic Luster?
  - What are Disproportionation Reactions? Explain your answer with an example.
  - Give systematic names to the given compounds : (a)  $\text{K}_2[\text{Cu}(\text{CN})_4]$  (b)  $[\text{Fe}(\text{CO})_5]$
  - Give four uses of Formaldehyde.
  - How will you distinguish between Ethanal and Propanone?
  - What are Derived Proteins? Give example.
  - What is the basic difference between Starch and Cellulose?
  - What are characters of Lipids?

Part - II

- Q.No.5
- What are Oxides? Describe various types of Oxides. (4)
  - How Sodium (Na) is prepared by Down's Cell Process? (4)
- Q.No.6
- How is Potassium Dichromate prepared? Give its reaction with : (a)  $\text{FeSO}_4$  (b) KI (4)
  - What is Smog? Explain the pollutants which are main cause of smog. (4)
- Q.No.7
- Define  $\text{sp}^2$  Hybridization and on its basis explain the structure of Ethene. (4)
  - How can you convert Benzene into : (4)
    - Cyclohexane
    - Maleic Anhydride
    - Glyoxal
    - Acetophenone
- Q.No.8
- How is Ethanol prepared from Molasses and Starch by Fermentation? (4)
  - Write down structural formula of the products formed when : (4)
 

1-Butene reacts with :

    - Cold dil  $\text{KMnO}_4 / \text{OH}^-$
    - HBr
    - $\text{O}_2$  in the presence of  $\text{Ag}_2\text{O}$
    - HOCl
- Q.No.9
- Explain Mechanism of  $\text{S}_{\text{N}}1$  reactions with a suitable example. (4)
  - For detection of Aldehydes, write down any two tests and also give their reactions. (4)





Time :	20 Minutes	Inter -A- 2019	(New Pattern)
Marks :	17	Session (2015 -17) to (2017 - 19)	Group 2nd

Note : Four possible choices A, B, C, D to each question are given. Which choice is correct fill that circle in front of that Question No. Use Marker or Pen to fill the circles. Cutting or filling two or more circles will result in Zero Mark in that Question.

Q.No.1	Which one is not a Periodic Property :
(1)	(A) Ionization Energy (B) Density (C) Atomic Radii (D) Hydration Energy
(2)	Which element is deposited at the Cathode during the Electrolysis of Brine in Nelson's Cell :
	(A) H <sub>2</sub> (B) Na (C) Cl <sub>2</sub> (D) O <sub>2</sub>
(3)	Metal used in Thermite Process is :
	(A) Iron (B) Copper (C) Aluminium (D) Zinc
(4)	Maximum No. of unpaired electrons are in :
	(A) O <sub>2</sub> (B) O <sub>2</sub> <sup>+</sup> (C) O <sub>2</sub> <sup>2+</sup> (D) O <sub>2</sub> <sup>2-</sup>
(5)	Cl <sub>2</sub> O <sub>7</sub> reacts with water to form :
	(A) Hypochlorous Acid (B) Chloric Acid (C) Perchloric Acid (D) Chlorine and Oxygen
(6)	Which one is non-typical transition element :
	(A) Cr (B) Mn (C) Zn (D) Fe
(7)	Tetra Ethyl Lead (T.E.L.) is used as :
	(A) Pain Killer (B) Petroleum Additive (C) Fire Extinguisher (D) Moth Repellent
(8)	Synthetic Rubber is made by Polymerization of :
	(A) Chloroform (B) Acetylene (C) Divinyl Acetylene (D) Chloroprene
(9)	Conversion of n-hexane to benzene by heating in the presence of Pt is called as :
	(A) Isomerization (B) Aromatization (C) Dealkylation (D) Rearrangement
(10)	For which set of Mechanism Step One (1st) is same
	(A) E1 and E2 (B) S <sub>N</sub> 1 and E1 (C) S <sub>N</sub> 2 and E2 (D) S <sub>N</sub> 1 and S <sub>N</sub> 2
(11)	According to Lewis concept Ethers behave as :
	(A) Acid (B) Base (C) Both Acid and Base (D) Amphoteric
(12)	Acetone + HCN give Cyanohydrin. It is the example of :
	(A) Electrophilic Addition (B) Electrophilic Substitution (C) Nucleophilic Addition (D) Nucleophilic Substitution
(13)	Origin of Formic Acid is :
	(A) Milk (B) Butter (C) Red Ants (D) Oil
(14)	Addition Polymer is :
	(A) Nylon 6, 6 (B) Polystyrene (C) Terylene (D) Epoxy Resin
(15)	Quantity Range of Micronutrients is :
	(A) 4 - 40 g (B) 6 - 200 g (C) 6 - 200 Kg (D) 4 - 40 Kg
(16)	Peroxyacetyl - Nitrate (PAN) is an Irritant of :
	(A) Eye (B) Nose (C) Stomach (D) Ears
(17)	Which one is not present in RNA :
	(A) Cytosine (B) Adenine (C) Thiamine (D) Uracil

B



Make Diagram where necessary.

Part - I

22 x 2 = 44

- Q.No.2
- (i) Ionic character of Halides decreases from left to right in a period. Explain.
  - (ii) Why the second value of electron affinity of an element is usually shown with a positive sign?
  - (iii) Write the chemistry of **Borax Bead Test**.
  - (iv) Give balanced equations to represent the following reactions :
    - (a) **Borax** is heated with **CaO**
    - (b) **Al<sub>2</sub>O<sub>3</sub>** is heated with **NaOH** solution.
  - (v) Why are Liquid Silicones preferred over Ordinary Organic Lubricants?
  - (vi) Give uses of Boric Acid.
  - (vii) Complete and Balance the following equations :
    - (a) **KNO<sub>3</sub> + H<sub>2</sub>SO<sub>4</sub> →**
    - (b) **NO<sub>2</sub> + H<sub>2</sub>SO<sub>4</sub> →**
  - (viii) Give the advantages of Contact Process for the manufacture of Sulphuric Acid.
  - (ix) Give two methods of preparation of **PCl<sub>5</sub>**.
  - (x) What are the prospects of Fertilizer Industry in Pakistan?
  - (xi) What are essential nutrients and why are these needed for plant growth?
  - (xii) What are **Leachates**?
- Q.No.3
- (i) What is **Catenation**? Why it is important process?
  - (ii) Write down structural formulas of following compounds :
    - (a) **3-Ethylpentane**
    - (b) **4-Ethyl-3,4-dimethylheptane**
  - (iii) How non-polarity of **Alkanes** is related to their unreactivity?
  - (iv) Write down structural formulas of the followings :
    - (a) **3-Chloriodobenzene**
    - (b) **2-Bromonitrobenzene**
  - (v) What is **Wurtz-Fittig Reaction**? Write its equation also.
  - (vi) Write down the reaction of Grignard's Reagent with Water. Write mechanism of reaction also.
  - (vii) Define Leaving Group in Nucleophilic Substitution Reactions. Give one example.
  - (viii) How **Phenol** is prepared by Dow's Method?
  - (ix) Write down the structural formulas of the : (a) **Sodium Ethoxide** (b) **Sodium Phenoxide**
  - (x) Write down basic characters of **Amino Acids**.
  - (xi) What happens when Carboxylic Acid reacts with metals? Give one example.
  - (xii) What is Vinegar? How Acetic Acid is prepared in Laboratory by Hydrolysis of Methyl-Nitrile?
- Q.No.4
- (i) What is Available Chlorine? How is Available Chlorine produced?
  - (ii) Perchloric Acid is stronger than Chloric Acid. Justify.
  - (iii) How does Fluorine differ from other Halogens?
  - (iv) Define Co-ordination Number with an example.
  - (v) Give an Industrial Method for the preparation of **Ethanal**.
  - (vi) How is **Calcium Acetate** converted into **Acetone**?
  - (vii) What is the difference between Fats and Oils?
  - (viii) What is Acid Number? How is it determined?
  - (ix) Give two importance of Proteins.

Part - II

- Q.No.5
- (a) What are the improvements made in the Mendeleev's Periodic Table? (4)
  - (b) Discuss the differences of **Li** with other members of **Alkali Metals** (any eight points) (4)
- Q.No.6
- (a) **KMnO<sub>4</sub>** acts as an Oxidizing Agent. Give four reactions in support of your answer. (4)
  - (b) How are Oil Spillage and Detergents affecting the Marine Life? (4)
- Q.No.7
- (a) Explain the reforming of Petroleum with suitable example. (4)
  - (b) Describe the structure of Benzene on the basis of Atomic Orbital Treatment. (4)
- Q.No.8
- (a) How does Ethyne reacts with : (4)
    - (a) **Hydrogen**
    - (b) **Halogen Acid**
    - (c) **Alkaline KMnO<sub>4</sub>**
    - (d) **10% H<sub>2</sub>SO<sub>4</sub>** in the presence of **HgSO<sub>4</sub>**.
  - (b) Write method for the preparation of **Methanol** along with its flow sheet diagram. (4)
- Q.No.9
- (a) What are Nucleophilic Substitution Reactions? Explain **S<sub>N</sub>1** reactions in detail. (4)
  - (b) What do you mean by **Aldol Condensation Reactions**? Explain it with mechanism. (4)

