

Roll No. of Candidate: -

11/11/19

Chemistry (New Scheme)
Time: 20 Minutes

(INTER PART-II) 419-(III)
OBJECTIVE
Code: 8485

Group: I

Paper: II
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. Attempt as many questions as given in objective type question paper and leave other blank.

1. Formula of chloroform is:
A) CCl_4 B) CHCl_3 C) CH_2Cl_2 D) CH_3Cl
2. The chemist who synthesized urea from ammonium cyanate was:
A) Berzelius B) Kolbe C) Wohler D) Lavoisier
3. Which of these polymers is a synthetic polymer?
A) animal fat B) starch C) cellulose D) polyester
4. Co-ordination number of Pt in $[\text{Pt}(\text{Cl})(\text{NO}_2)(\text{NH}_3)_4]^{2+}$ is
A) 1 B) 2 C) 4 D) 6
5. All of following are included in calcareous materials except:
A) lime B) clay C) marble D) marine shell
6. The solution of which acid is used for seasoning of food?
A) formic acid B) acetic acid C) benzoic acid D) butanoic acid
7. Oxidation of NO in air produces
A) N_2O B) N_2O_2 C) N_2O_4 D) N_2O_5
8. Rectified spirit contains about how many percent of alcohol?
A) 80 % B) 85 % C) 90 % D) 95 %
9. The reaction between fat and NaOH is called:
A) esterification B) hydrogenolysis C) fermentation D) saponification
10. Which of following element is not abundantly present in earth's crust?
A) silicon B) aluminum C) sodium D) oxygen
11. Non-metals are present in which block of periodic table?
A) s-block B) p-block C) d-block D) f-block
12. Which halogen occurs naturally in a positive oxidation state?
A) fluorine B) Chlorine C) bromine D) iodine
13. For which mechanisms, the first step involved is the same?
A) E_1 and E_2 B) E_2 and SN_2 C) SN_1 and E_2 D) E_1 and SN_1
14. Which of the following will have the highest boiling point?
A) methanal B) ethanal C) propanal D) 2-hexanone
15. Aromatic hydrocarbons are the derivatives of:
A) alkanes B) alkenes C) benzene D) cyclohexane
16. The pH range of the acid rain is:
A) 7 - 6.5 B) 6.5 - 6 C) 6 - 5.6 D) less than 5
17. Which hydroxide gets decomposed on heating?
A) LiOH B) NaOH C) KOH D) RbOH

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

(SECTION - I)

2. Write short answers to any EIGHT questions.

(2 × 8 = 16)

- Why the values of the ionization energy decreases down the group?
- Why ZnO is regarded as amphoteric oxide?
- Why lime water turns milky with CO₂ but becomes clear with excess of CO₂?
- How boric acid is prepared on commercial scale from Colemanite?
- Why Aluminium sheets are said to be corrosion free?
- Why CO₂ is a gas at room temperature while SiO₂ is a solid?
- How an aqua regia dissolves gold?
- How orthophosphoric acid is converted into pyro and metaphosphoric acid?
- How hot concentrated H₂SO₄ reacts with Cu and Ag metals?
- Name four macronutrients and also mention per acre range of their requirement.
- Name any four parts of paper making machine.
- What is "Chemical Oxygen Demand (COD)"? How is it measured?

3. Write short answers to any EIGHT questions.

(2 × 8 = 16)

- What is "Catalytic Cracking"?
- Compounds containing double bonds are more reactive, give reason.
- Write mechanism for the addition of halogen in alkene.
- Prepare benzene from acetylene and n-hexane.
- Draw structural formulas of p-nitrotoluene and p-Dibenzylbenzene.
- Starting from suitable Grignard reagent prepare ethane and ethyl cyanide.
- Write reaction to prepare tetra ethyl lead and Nitro ethane.
- Prepare ethanol from starch.
- Convert ethanol to Iodoform.
- Write strecker synthesis to prepare amino acid.
- What is glacial acetic acid.
- Write structural formula of Lysine and Valine.

4. Write short answers to any SIX questions.

(2 × 6 = 12)

- What is an "Iodized Salt"?
- Why iodine has metallic luster? Justify.
- Name any two methods to manufacture bleaching powder. Also give reaction for this.
- Name different forms of Iron and mention which is the purest form?
- Describe Tollen's test for the identification of aldehydes.
- Write any four uses of formaldehyde.
- Define saponification number with a suitable example.
- Write two points of difference between a fat and oil.
- Differentiate with at least two points between "Amylose" and "Amylopectin".

(SECTION - II)

- Explain "Hydration Energy" as periodic property. 4
 - Point out the eight differences between Li and its group members. 4
- What is meant by "Corrosion"? Explain electrochemical theory of corrosion. 4
 - What is "Acid Rain"? Give detailed effects of acid rain on environment. 4
- Write down any four important features of organic compounds. 4
 - Draw structural formulas of following compounds: 4
 - m-chlorobenzoic acid
 - 2, 4, 6 trinitrotoluene
 - p-hydroxybenzoic acid
 - m-nitrophenol
- How is ethyne converted into following compounds? 4
 - Acetaldehyde
 - Chloroprene
 - Acrylonitrile
 - Methyl nitrile
 - Name the following compounds according to I.U.P.A.C system: 4
 - H₃C - C₂H - C₂H - O - C₃H
 - H₃C - O - C₆H₅
 - H₅C₂ - CH - OH
 - (H₃C)₃ COH
- Discuss "Aldol Condensation" with mechanism. 4
 - Using ethyl bromide as a starting material, how will you prepare the following compounds: 4
 - n-Butane
 - ethyl alcohol
 - propanoic acid
 - ethene

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Group: II

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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. Attempt as many questions as given in objective type question paper and leave other blank.

1. A polymeric substance that is formed in the liquid state and then hardened to a rigid solid is called a
A) fibre B) varnish C) plastic D) polyamide resin
2. Which set of hybrid orbitals has planar triangular shape?
A) sp B) sp^2 C) sp^3 D) dsp^3
3. The electrophile used in aromatic sulphonation is:
A) H_2SO_4 B) HSO_4^{-1} C) SO_3 D) SO_3^+
4. Which one of the following enzymes brings about the hydrolysis of fats?
A) urease B) lipase C) maltase D) zymase
5. Vinyl acetylene combines with HCl to form:
A) polyacetylene B) benzene C) chloroprene D) divinyl acetylene
6. Formula of Epsom salt is:
A) $MgSO_4 \cdot 7H_2O$ B) $MgSO_4$ C) $MgCO_3$ D) $CaMg_3(SiO_3)_4$
7. Which of the following reagent will react with both aldehydes and Ketones
A) Tollen's reagent B) Fehling reagent C) Barford reagent D) Grignard reagent
8. Which metal is used in the thermite process because of its activity:
A) iron B) copper C) aluminium D) zinc
9. Keeping in view the size of atom, which order is correct one
A) $Mg > Sr$ B) $Ba > Mg$ C) $Lu > Ce$ D) $Cl > I$
10. Ecosystem is smaller unit of:
A) atmosphere B) biosphere C) lithosphere D) hydrosphere
11. Group VI B of transition elements contains:
A) Zn, Cd, Hg B) Fe, Ru, Os C) Cr, Mo, W D) Mn, Te, Re
12. Ammonium Nitrate Fertilizer is not used for which crop?
A) cotton B) wheat C) sugar cane D) paddy rice
13. Which compound is more soluble in water?
A) C_2H_5OH B) C_6H_5OH C) CH_3COCH_3 D) n-Hexanol
14. Which halogen will react spontaneously with $Au(s)$ to produce Au^{3+} ?
A) I_2 B) Br_2 C) Cl_2 D) F_2
15. The brown gas formed, when metal reduce HNO_3 to:
A) N_2O_5 B) N_2O_3 C) NO_2 D) N_2O_4
16. When CO_2 is made to react with ethyl magnesium Iodide, followed by acid hydrolysis, the product formed is:
A) propanoic acid B) ethanoic acid C) propane D) propanal
17. Which reagent is used to reduce carboxylic group to an alcohol:
A) H_2/Ni B) H_2/Pt C) $NaBH_4$ D) $LiAlH_4$

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

(SECTION - I)

2. Write short answers to any EIGHT questions. (2 × 8 = 16)
- Define "Covalent Hydride" with one example.
 - Oxides of non-metals show acidic behavior, give reason.
 - Why 2% of gypsum is added in cement?
 - Aluminium is not found in free state, give reason.
 - CO₂ is gas at room temperature while SiO₂ is a solid, give reason.
 - What is "Borax"?
 - Write two reactions in which H₂SO₄ acts as oxidizing agent.
 - Write two differences between Oxygen and Sulphur.
 - Write two methods for the preparation of NO₂.
 - What are phosphatic fertilizers?
 - What do you mean by "Setting of Cement"?
 - What is role of chlorofluoro carbons in "Destruction of Ozone"?
3. Write short answers to any EIGHT questions. (2 × 8 = 16)
- Define the term "Tautomerism" with an example.
 - Give name and reaction of alkenes which is used to indicate the position of double bond.
 - How is ethyne converted into:
 - Ethanal
 - Benzene
 - How is benzene converted into m-chloronitro-benzene?
 - How will you convert phenol into benzene?
 - How is ethene converted into 1-butanol?
 - Give the reaction which is more useful for the preparation of alkyl chlorides.
 - Give the structural formulae of following compounds:
 - Glycerol
 - Lactic acid
 - How is ethyl iodide prepared from diethyl ether?
 - What is "Peptide Linkage"?
 - How is amino acid prepared by strecker synthesis?
 - How is ethanol converted into ethanoic acid?
4. Write short answers to any SIX questions. (2 × 6 = 12)
- Why HF is weaker acid than HCl?
 - Justify that Cl₂O₇ is the anhydride of per-chloric acid.
 - Complete & balance the following equations:
 - XeF₄ + NH₃ ⇒
 - XeF₆ + SiO₂ ⇒
 - Define "Paramagnetism & Diamagnetism".
 - Distinguish chemically between "Acetone" and "Ethyl alcohol".
 - Convert methanol to ethanol.
 - Cellulose is not digested by human intestinal track justify.
 - Point out difference between "Cellulose" and "Starch".
 - How radiations affect the activity of enzyme?

(SECTION - II)

- State Mendeleev's periodic law and write down the improvements made in the Mendeleev's table. 4
 - Write down eight points in which lithium differs from other elements of group IA. 4
- Explain the following with two examples each: 2+2
 - Ligand
 - Co-ordination number
 - What is smog? Explain the pollutants which are main cause of photochemical smog. 1+3
- What is chain isomerism? Draw all the possible skeletal formulae of hexane. 1+3
 - Write two reactions for each to justify benzene as saturated and as unsaturated compound. 2+2
- Write Kolbe's method of preparation of ethyne along with its mechanism. 4
 - How does ethanol react with: 4
 - PCl₃
 - SOCl₂
 - Na
 - CH₃COOH
- How C₂H₅MgBr reacts with the following: 4
 - H₂O
 - CO₂
 - HCHO
 - CH₃COCH₃
 - Write one laboratory and one industrial method for preparation of acetaldehyde. 4