

SECTION-I

**QUESTION NO. 2 Write short answers any Eight (8) questions of the following** 16

- (1) The melting and boiling points of elements increase from left to right upto middle of S and P-Block element and decrease downward, why?
- (2) How will you prove that phosphoric Acid is tribasic acid
- (3) What are homo cyclic and heterocyclic compounds, give one example of each
- (4) Give structures of ISO butyl chloride and ISO propyl chloride
- (5) How ammonia reacts with acetic acid, give mechanism?
- (6) Why ammonium nitrate is not used for paddy rice?
- (7) Zinc Oxide is amphoteric in nature, write two chemical reaction in its favour
- (8) Why  $\text{SO}_3$  dissolves in  $\text{H}_2\text{SO}_4$  but not in water?
- (9) What is tautomerism? Give example
- (10) Why Grignard reagent are reactive class of compound?
- (11) What is difference between protein and polypeptide?
- (12) Discuss reaction taking place in 1-7 days in setting of cement

**QUESTION NO. 3 Write short answers any Eight (8) questions of the following** 16

- (1) Give Reaction of Mg with  $\text{N}_2$  and Sulphur
- (2) What is cement plaster and Hard Finish plaster
- (3) Give four applications of Noble gases
- (4) On what factors oxidizing properties of Halogens depends
- (5) How ethyne is prepared on Industrial scale
- (6) Define Markownikoff's Rule. Give one example
- (7) Define Fermentation. Give its condition
- (8) How Backelite is obtained from Formaldehyde
- (9) Write a note on cellulose
- (10) How proteins are denatured?
- (11) Write a note on bleaching of paper pulp
- (12) Define fertilizers. Which elements are necessary for plants

**QUESTION NO. 4 Write short answers any Six (6) questions of the following** 12

- (1) Write four uses of sodium silicates
- (2) Write the names of any two important lead pigment with their colour
- (3) Why d- and f-block elements are called transition elements?
- (4) What are chelates?
- (5) What is the role of  $\text{FeCl}_3$  and  $\text{AlCl}_3$  in electrophilic substitution reaction
- (6) Give two reactions which show that benzene is unsaturated hydrocarbon?
- (7) How formalin is prepared on the commercial scale from Methyl alcohol?
- (8) Justify that Cannizzaro's reaction is self oxidation reduction reaction?
- (9) Benedict's solution reacts with aldehydes to give red ppt. Justify it

SECTION-II

**Note: Attempt any Three questions from this section**

**8 x 3 = 24**

- |  |   |
|--|---|
| 5.(a) What is the role of gypsum in industries ?   | 4 |
| (b) Write the Kolbe's electrolytic method for the preparation of ethyne along with mechanism                   | 4 |
| 6.(a) Give uses of Borax   | 4 |
| (b) Write a note on Friedel crafts reaction  | 4 |
| 7.(a) Sulphuric acid acts as oxidizing agent and dehydrating agent, support your answer with two examples each | 4 |
| (b) What are B-Elimination reactions, Discuss its types?   | 4 |
| 8.(a) Write a brief note on nomenclature of oxy acids of halogen   | 4 |
| (b) Give two reactions in each case in which C - O and O - H bond of alcohol is broken                         |   |
| 9.(a) Define orbitals hybridization. Discuss structure of ethene on basis of hybridization?                    | 4 |

ROLL NO .....

PAPER CODE - 8481  
(12<sup>th</sup> CLASS - 12015)

CHEMISTRY, GROUP FIRST  
(ACADIMEC SESSION : 2012 - 2014 and 2013 - 2015)

TIME: 20 MINUTES  
MARKS: 17

**OBJECTIVE**

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.

**QUESTION NO. 1**

- 1 Keeping in view the size of atoms which order is the correct one  
(A) Mg > Sr (B) Ba > Mg (C) Lu > Ce (D) Cl > I
- 2 Which gas is evolved at cathode during the electrolysis of brine in diaphragm cell ?  
(A) H<sub>2</sub> (B) Na (C) Cl<sub>2</sub> (D) O<sub>2</sub>
- 3 Which metal is used in the thermit process because of its activity  
(A) Fe (B) Cu (C) Al (D) Zn
- 4 The brown gas formed when metal reduces HNO<sub>3</sub> is  
(A) N<sub>2</sub>O<sub>5</sub> (B) N<sub>2</sub>O<sub>3</sub> (C) NO<sub>2</sub> (D) NO
- 5 Which is the strongest acid ?  
(A) HClO (B) HClO<sub>2</sub> (C) HClO<sub>3</sub> (D) HClO<sub>4</sub>
- 6 Co-ordination number of Pt in [ Pt Cl(NO<sub>2</sub>)(NH<sub>3</sub>)<sub>4</sub> ] is  
(A) 2 (B) 4 (C) 1 (D) 6
- 7 Linear shape is associated with which set of hybrid orbitals ?  
(A) Sp (B) Sp<sup>2</sup> (C) Sp<sup>3</sup> (D) dSp<sup>2</sup>
- 8 Synthetic rubber is made by polymerization of  
(A) Chloroform (B) Acetylene (C) Divinylacetylene (D) Chloroprene
- 9 During nitration of benzene the active nitrating agent is  
(A) NO<sub>3</sub> (B) NO<sub>2</sub><sup>+</sup> (C) NO<sub>2</sub><sup>-</sup> (D) HNO<sub>3</sub>
- 10 Which one of the following is not a nucleophile  
(A) H<sub>2</sub>O (B) H<sub>2</sub>S (C) BF<sub>3</sub> (D) NH<sub>3</sub>
- 11 Rectified spirit contains alcohol about  
(A) 80 % (B) 85 % (C) 90 % (D) 95 %
- 12 Which of the following compounds will not give iodoform test on treatment with I<sub>2</sub> / NaOH  
(A) Acetaldehyde (B) Acetone (C) Butanone (D) 3 - pentanone
- 13 Which of the following reagents will react with aldehydes and ketones  
(A) Grignard reagent (B) Tollen's reagent (C) Fehling's reagent (D) Benedict's reagent
- 14 Which reagent is used to reduce a carboxylic group to alcohol  
(A) H<sub>2</sub>/Ni (B) H<sub>2</sub>/Pt (C) NaBH<sub>4</sub> (D) LiAlH<sub>4</sub>
- 15 Which of these polymers is a synthetic polymer ?  
(A) animal fat (B) Starch (C) Cellulose (D) polyester
- 16 Micro-nutrient are required in quantity for plants growth ranging from  
(A) 4 - 40 g (B) 6 - 200 g (C) 6 - 200 Kg (D) 4 - 40 Kg
- 17 The PH range of the acid rain is  
(A) 7 - 6.5 (B) 6.5 - 6 (C) 6 - 5.6 (D) less than 5

SECTION-I**QUESTION NO. 2 Write short answers of any Eight (8) questions of the following**

16

- (1) Give two dissimilarities of Hydrogen with I-A group elements
- (2) Diamond is a non conductor but graphite is a good conductor. Why ?
- (3) Sulphuric acid acts as dehydrating agent. Give two examples
- (4) Give four differences of oxygen with sulphur
- (5) Define Functional group. Give two examples of oxygen containing functional groups
- (6) Define cis-trans Isomerism (7) Convert Ethyl bromide into (a) Ethane (b) n- Butane
- (8) What are Nucleophilic substitution reactions. Give an example (9) What are Zwitterions ?
- (10) Explain acidic and basic behaviour of amino acids
- (11) Name calcareous and Argillaceous raw materials of cement
- (12) Describe Neutral sulphite semichemical process of pulping of paper

**QUESTION NO. 3 Write short answers of any Eight (8) questions of the following**

16

- (1) How gypsum is converted into plaster of paris ?
- (2) Why the aqueous solution of  $\text{Na}_2\text{CO}_3$  is alkaline in nature (3) What is Iodized salt ?
- (4) Why HF is weaker acid than HCl ? (5) What is clemmensen reduction ? Also give its reaction
- (6) A  $\text{Pi}(\pi)$  bond is weak bond as compared to a sigma ( $\sigma$ ) bond. Justify it
- (7) What is difference between monohydric and polyhydric alcohols ? Give one example of each
- (8) Which test is used to distinguish between methanol and ethanol ?
- (9) Differentiate between thermoplastic and thermosetting polymers giving one example of each
- (10) What are carbohydrates and how are they classified ? (11) Define environmental pollutant
- (12) What is chemical oxygen demand (COD) ? How is it measured ?

**QUESTION NO. 4 Write short answers of any Six (6) questions of the following**

12

- (1) Write four uses of Borax (2) What are SILICONES ? Give an example
- (3) Write two properties of transition metals
- (4) Write IUPAC names of the following complexes (i)  $[\text{Fe}(\text{CO})_5]$  (ii)  $\text{K}_2[\text{PtCl}_6]$
- (5) What are polycyclic aromatic compounds
- (6) What objections were raised on the Kekule's structure for benzene molecule ?
- (7) Write the general mechanism of Base catalysed addition reactions of carbonyl compounds
- (8) How does Formaldehyde react with (i) Conc. NaOH (ii)  $\text{NaHSO}_3$
- (9) How HCHO and  $\text{CH}_3\text{CHO}$  are polymerized ? Give chemical equations

SECTION-II**Note: Attempt any Three questions from this section**

8 x 3 = 24

- 5.(a) Write a note on peculiar behaviour of Beryllium 4
- (b) Write a note on acidic character of alkynes. Elaborate your answer with chemical equations 4
- 6.(a) What are Silicones ? Write their four uses 4
- (b) How Aromatic Hydrocarbons are named ? Give one example of each point 4
- 7.(a) How nitric acid is prepared by Birkeland and Eyde's process 4
- (b) Differentiate between  $\text{SN}_2$  and  $\text{SN}_1$  reactions of alkyl halides 4
- 8.(a) Write chemical reactions of Fluorides of Xenon 4
- (b) How does phenol reacts with the following reagents (i)  $\text{HNO}_3$  (ii) NaOH (iii) Zn (iv) Bromine water 4
- 9.(a) How organic compounds are classified ? Give one example of each type 4
- (b) Describe with mechanism aldol - condensation reaction 4

SECTION - III(PRACTICAL)**10. Attempt any three parts from A , B , C , D and E**

3x5 = 15

- (A) Write the qualitative analysis of cobalt radical in a systematic manner 5
- (B) Write the qualitative analysis of Magnesium radical in a systematic manner 5
- (C) (i) Write the qualitative analysis of Iodide radical in a systematic manner 4
- (ii) How a salt can be Identified by a smell 1
- (D) How will you Identify Aldehydic group in an organic compound 5

ROLL NO.....

PAPER CODE - 8482

(12<sup>th</sup> CLASS - 12015)

CHEMISTRY , GROUP SECOND

TIME: 20 MINUTES

*Academic Session 2012-2014 and 2013-2015*

MARKS: 17

OBJECTIVE

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.

**QUESTION NO. 1**

- Which one of the following is intermediate hydride?  
(A) Li H      (B) Mg H<sub>2</sub>      (C) Ca H<sub>2</sub>      (D) Sr H<sub>2</sub>
- Natron has the chemical formula  
(A) NaNO<sub>3</sub>      (B) KNO<sub>3</sub>      (C) Na<sub>2</sub> CO<sub>3</sub> . H<sub>2</sub>O      (D) Ca CO<sub>3</sub>
- Which one of following is used in cosmetics?  
(A) Tale      (B) Asbestos      (C) Sodium Sulphate      (D) Aluminum Sulphate
- What is % age of calcium phosphate in bone ash?  
A) 20      (B) 40      (C) 60      (D) 80
- Which one is chlorous acid?  
(A) HClO      (B) HClO<sub>2</sub>      (C) HClO<sub>3</sub>      (D) HClO<sub>4</sub>
- Which one is non-typical transition element  
(A) Cr      (B) Mn      (C) Zn      (D) Fe
- Which set of hybrid orbital has planar triangular shape  
(A) Sp<sup>3</sup>      (B) Sp      (C) Sp<sup>2</sup>      (D) dSp<sup>2</sup>
- Which one is not a property or uses of mustard gas  
(A) Used in 1<sup>st</sup> world War      (B) Power full vesicant      (C) high boiling liquid      (D) high boiling gas
- Which one is not a metal directing group  
(A) - COOH      (B) - CHO      (C) - COR      (D) - NH<sub>2</sub>
- For which step mechanism, the first step involved is the same  
(A) E<sub>1</sub> and E<sub>2</sub>      (B) E<sub>2</sub> and SN-2      (C) SN-1 and E<sub>2</sub>      (D) E<sub>1</sub> and SN-1
- Which one will show the maximum repulsion with water  
(A) C<sub>6</sub> H<sub>6</sub>      (B) C<sub>2</sub> H<sub>5</sub>OH      (C) CH<sub>3</sub>CH<sub>2</sub>CH<sub>2</sub>OH      (D) CH<sub>3</sub> OCH<sub>3</sub>
- Cannizaro's reaction is not given by  
(A) HCHO      (B) CH<sub>3</sub> CHO      (C) C<sub>6</sub>H<sub>5</sub> - CHO      (D) (CH<sub>3</sub>)<sub>3</sub>C CHO
- Which one has yellow or orange crystalline ppt?  
(A) Acetone hydrazone      (B) 2,4-DNPH      (C) Ethanal oxime      (D) Bisulphite addition product
- Which one is used in manufacturing of synthetic fiber  
(A) Formic acid      (B) oxalic acid      (C) Carbonic acid      (D) acetic acid
- Which of these polymer is synthetic polymer  
(A) Starch      (B) animal fat      (C) polyester      (D) cellulose
- Phosphorous helps the growth of  
(A) root      (B) leave      (C) seed      (D) stem
- News paper can be recycled again and again by how many times?  
(A) 2      (B) 4      (C) 3      (D) 5