

- a. Give the formulas of: i. Formaldehyde ii. Acetaldehyde
35. What is Formalin?
36. Prepare acetone from calcium acetate.
37. Give Industrial preparation of Formaldehyde.
38. How acetaldehyde is prepared in industry?
39. How will you distinguish between ethanol and Benzaldehyde? Give respective chemical reaction.
40. What is "Haloforn Reaction" Give its uses.
41. Give reactions of Aldehyde with:
- a. i. HCN ii. $\text{CH}_3\text{-CH}_2\text{-OH}$
42. What is Cannizzaro's reaction? Write one example.
43. How iodoform is prepared from acetaldehyde and ethyl alcohol?
44. How HCHO and CH_3CHO are polymerized? Give chemical reaction?
45. Write composition of Tollen's reagent? and which organic compound are usually identified by it?
46. What is "Fehling's solution test" of aldehyde?
47. Benedict's solution reacts with Aldehydes to give red-ppt. Justify it?
48. Write down four uses of formaldehyde?
49. Write four important uses of acetaldehyde?
50. Write formulae of Malonic acid and Phthalic acid.
51. What are fatty acids? Give an example.
52. Write the mechanism of Amide formation.
53. How acetic acid is obtained from methyl cyanide?
54. What is glacial acetic acid?
- a. Write any four uses of acetic acid.
55. What are amino acids? Give two examples.
56. What are essential and Non-essential amino acids?
57. What is Zwitter ion? How it is formed?
58. Explain acidic and basic behavior of Amino acids?
59. How amino acid is synthesized give one method.
60. What is Ninhydrin Test?
61. What is peptide bond? Write down formula of a dipeptide?

LONG QUESTIONS

LONG QUESTION NO. 5

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| ✓ What is Mendeleev's periodic table? Discuss improvements in Mendeleev's periodic table. | ✓ Explain peculiar behavior of Beryllium. ✓ Describe the process for the preparation of sodium metal on industrial scale by Down's |
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- ✓ Define ionization energy. How does it vary in a group and period of the periodic table?
- ✓ Define hydrides give their classification?
- ✓ Explain similarities of hydrogen with halogens and dissimilarities with Alkali metals.
- ✓ Discuss the position of hydrogen over V in a group elements.

- cell? What are advantages of the process?
- ✓ Describe commercial preparation of sodium hydroxide by diaphragm cell or Nelson cell.
- ✓ What is the role of Gypsum in industries
- ✓ Give role of lime in industries? Write only eight points.

LONG QUESTION NO. 6

- ✓ Write four points which show the peculiar behaviour of fluorine from other halogen. (3 Time)
- ✓ What happens when bleaching powder reacts with?
 - i. dil. H_2SO_4
 - ii. Conc. H_2SO_4
 - iii. NH_3
 - iv. HI
- ✓ What is Bleaching powder is prepared by Hasenclever's method? Give its reaction with HCl and NH_3 .

- ✓ Write essential qualities of a good fertilizer.
- ✓ 'Nitrogenous fertilizer is an important class of fertilizers for crops'. Discuss.
- ✓ Write commercial uses of Halogens and their compounds?
- ✓ Write the application of noble gases.

LONG QUESTION NO. 7

- ✓ Explain cracking of hydrocarbons giving its two types.
- ✓ Explain reforming of petroleum with the help of suitable example.
- ✓ Explain any four features of organic compounds.
- ✓ What is orbital hybridization? Explain sp^3 -hybridization of carbon.
- ✓ What is sp - hybridization ? Explain structure of acetylene according to this theory.
- ✓ Define four types of isomerization with one example.

- ✓ Explain the structure of Benzene on the basis of atom orbital treatment? (10 Time)
- ✓ Discuss two industrial and two laboratory methods to prepared Benzene.
- ✓ What are Friedel and Craft's reactions? Give one example in each case with mechanism.
- ✓ Describe nitration and sulphonation of benzene with mechanism.
- ✓ Convert Benzene into:
 - i. Cyclohexane
 - ii. Maleic acid
 - iii. Glyoxal
 - iv. Benzene sulphonic acid

LONG QUESTION NO. 8

- ✓ Prepare Ethane from Kolbe's Electrolytic method?
- ✓ Give reactions of Ethene with:
 - (i) S_2Cl_2
 - (ii) $HOCl$
 - (iii) O_3
 - (iv) $KMnO_4$
- ✓ Describe with examples the acidic nature of Alkynes?
- ✓ Write the Kolbe's electrolytic method for the preparation of Ethyne along with mechanism.
- ✓ Convert Acetylene into:

- ✓ Explain the structure of Benzene on the basis of atom orbital treatment?
- ✓ Discuss two industrial and two laboratory methods to prepared Benzene.
- ✓ What are Friedel and Craft's reactions? Give one example in each case with mechanism.
- ✓ Describe nitration and sulphonation of benzene with mechanism.
- ✓ Convert Benzene into:
 - i. Cyclohexane
 - ii. Maleic acid
 - iii. Glyoxal
 - iv. Benzene sulphonic acid

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| <ul style="list-style-type: none"> ▪ (i) Glyoxal (ii) Chloroprene ✓ How ethyne reacts with: ✓ Alkaline KMnO_4 ✓ (ii) 10% H_2SO_4 in the presence of HgSO_4 | |
| <ul style="list-style-type: none"> ▪ (iii) HBr (iv) $\text{NH}_3/\text{Al}_2\text{O}_3$ | |

LONG QUESTION NO. 9

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| <ul style="list-style-type: none"> ✓ Write laboratory and Industrial preparation of acetaldehyde. ✓ Write a note Cannizzaro's reaction. ✓ What is aldol condensation? Give example and mechanism. ✓ How does Acetaldehyde react with following reagents? ✓ i. $\text{C}_2\text{H}_5\text{MgI}$ ii. HCN iii. NaHSO_3 iv. I_2/NaOH ✓ How 2-4 dinitrophenylhydrazones are prepared? Write mechanism of reaction of ammonia derivatives with carbonyl compound in general? ✓ Write a brief note on haloform reaction ✓ Write a note on oxidation of aldehydes and ketones. | <ul style="list-style-type: none"> ✓ Define Zwitter ion. Discuss effect of acidic and basic medium on the dipole ion structure of amino acid. ✓ Explain the mechanism of the reaction of acetic acid with SOCl_2. ✓ How would you prepare carboxylic acid from primary alcohols and aldehyde? ✓ Write down any four methods of preparation of acetic acid with reactions? ✓ Define amino acids? What is the difference between protein and polypeptides? |
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