

Q1. Choose the correct answer.

1.The process used to improve quality of gasoline is called:

- (A)Thermal cracking (B)Reforming (C)Steam cracking (D)Combustion

2.-SH functional group is called:

- (A)Cyano (B)Mercapto (C)Nitro (D)Carboxyl

3.Ethers show the phenomenon of:

- (A)Position isomerism (B)Functional group isomerism
(C)Metamerism (D)Cis-trans isomerism

4.The catalytic oxidation of methane produces:

- (A) $\text{CO} + \text{H}_2\text{O}$ (B) $\text{CO}_2 + \text{H}_2\text{O}$ (C) $\text{C}_2 + \text{H}_2\text{O}$ (D) $\text{H}_3\text{C}-\text{OH}$

5.\beta - \beta' -dichloroethyl sulphide is commonly known as:

- (A)Mustard gas (B)Laughing gas (C)Phosgene gas (D)Bio-gas

6.Aromatic compounds burn with sooty flame because:

- (A)They have high percentage of hydrogen (B)They have a ring structure
(C)They have high percentage of carbon (D)They resist reaction with air

7.Which of the following is Ortho and Para directing group?

- (A)-1 (B)-CHO (C)-COOH (D)- NR_3

8. $\text{S}_\text{N}2$ reactions can be best carried out with:

- (A)Primary alkyl halides (B)Secondary alkyl halides
(C)Tertiary alkyl halides (D)All the three

9.Cyanogen chloride reacts with ethyl magnesium bromide to give.

- (A) $\text{CH}_3\text{CH}_2\text{Cl}$ (B) $\text{CH}_3\text{CH}_2\text{Br}$ (C) C_4H_{10} (D) $\text{CH}_3\text{CH}_2\text{CN}$

10.Rectified spirit contains methyl alcohol about:

- (A)80% (B)85% (C)90% (D)95%

11.Which is most difficult to be oxidized?

- (A) CH_3CHO (B) CH_3COCH_3 (C) HCHO (D) $\text{C}_2\text{H}_5\text{CHO}$

12.Which one has yellow or orange crystalline ppt?

- (A)Acetone hydrazine (B)2,4-DNPH (C)Ethanol oxime (D)Bisulphite addition product

13.The flavor of amylacetate is:

- (A)Orange (B)Apricot (C)Banana (D)Pinapple

14.Banana flavor is given by the ester:

- (A)Octyl acetate (B)Amyl butyrate (C)Amyl acetate (D)Ethyl butyrate

15.Which one is not a fatty acid?

- (A)Acetic acid (B)Propionic acid (C)Butanoic acid (D)Palmitic acid

16.Nylon 6, 6 is obtained by the reaction of hexamethylene diamine with:

- (A)Acetic acid (B)Adipic acid (C)Vinyl chloride (D)Acetyl chloride

17.Which one is a disaccharide?

(A)Glucose

(B)Sucrose

(C)Fructose

(D)Cellulose

Q2. Write short answers of the following questions.

- 1.What are homocyclic and heterocyclic compounds? Give one example of each.
- 2.What is catalytic Cracking?
- 3.What are Isomers and Tautomers?
- 4.1-Butane does not show cis-trans isomerism but 2-butene does. Justify the statement.
- 5.Write structural formula of the following compound. 2,3,4,4-Tetramethyl-2-pentene
- 6.What is Raney-Nickel? Where it is prepared?
- 7.How alkanes are prepared by reduction of aldehyde and Ketones?
- 8.How C_2H_2 reacts with: a) **(10% H_2SO_4) / $HgSO_4$** b) **HBr**
- 9.How do you justify that 150.5 kJmol^{-1} is the resonance energy of benzene?
- 10.What is Wurtz-Fittig reactions?
- 11.How Acetophenone can be obtained from benzene?
- 12.How Acylation of Benzene takes place. Give its mechanism?
- 13.How does bond polarity of C-X bond affect the reactivity of alkyl halides?
- 14.Convert ethyl bromide into: i) Ethane b) n-Butane
- 15.Write down a method for the preparation of ethyl magnesium bromide in laboratory.
- 16.How will you carry out the following conversions? $CH_3CH_3 \rightarrow (CH_3CH_2)_4N^+Br^-$
- 17.Why absolute alcohol is not obtained by fermentation process and how is it obtained?
- 18.What is Lucas test?
- 19.How will you distinguish between 1-propanol and 2-propanol?
- 20.Prepare bakelite from phenol.
- 21.How HCHO and CH_3CHO are polymerized? Give chemical reaction.
- 22.Convert Acetone into 2-Propanol.
- 23.How acetone is oxidized with $K_2Cr_2O_7 / H_2SO_4$?
- 24.What is iodoform test? Give two uses of it.
- 25.Why boiling point of carboxylic acid is relatively high?
- 26.How is acetic acid manufactured? What is glacial acetic acid?
- 27.What is Ninhydrin Test?
- 28.What is Zwitter ion? How it is formed?
- 29.Define saponification number and iodine number.
- 30.Define saponification number with a suitable example

Q3. Write detailed answers of the following questions.

1. What is SP-hybridization? Explain structure of acetylene according to this theory.
2. Give reactions of Ethene with: (i) H_2SO_4 (ii) O_2 (iii) HOCl (iv) KMnO_4
3. Write mechanism for: i) Friedel Crafts Alkylation ii) Nitration of Benzene
4. Discuss $\text{S}_{\text{N}}2$ reactions of alkyl halide in detail.
5. Write the reactions of ethyl alcohol with: Na-metal, SOCl_2 , NH_3 and $\text{K}_2\text{Cr}_2\text{O}_7 / \text{H}_2\text{SO}_4$
6. How phenol reacts with: Zn, NaOH, HNO_3 and H_2SO_4