

I. Choose the best answer:

15x1=15

1. $\text{CH}_2 = \overset{\text{CH}_3}{\text{C}} - \text{CH}_3$ is named as ____.
- a. 2-methyl pro-1-ene b. 1-methylpropene
c. 2-methyl prop-2-ene d. 1-prop2methylene
2. Glycerol heated with dehydrating agents gives
a. acrolein b. 14-dioxane c. oxalic acid d. none of the above
3. Carbanion is ____.
- a. Lewis base b. Lewis acid c. both d. none of these
4. The galvanic cell in which the energy of combustion of fuels is directly converted in to electrical energy called ____.
- a. fuel cell b. leclanche cell
c. mercury button cell d. all of these
5. Ferric hydroxide and haemoglobin is an example of
- a. positive colloids b. negative colloid
c. neutral colloid d. amphoteric colloid
6. Diborane reacts with an alkene follows
- a. Antimarkownikoffs rule b. Markownikoff's rule
c. Popoff's rule d. Saytzeff's rule
7. Erythrose and Erythrulose is an example of ____.
- a. trioses b. tetroses c. pentoses d. hexoses
8. The RNA which is the site for protein synthesis
- a. r-RNA b. t-RNA c. m-RNA d. mRNA & tRNA
9. Pellagra deficiency disease is due to lack of ____.
- a. niacin b. thiamine c. retinol d. biotin

10. SDS is ____.

- a. anionic detergent b. cationic detergent
c. non ionic detergent d. both a and b

11. Novalac on further heating with ____ forms Bakelite.

- a. HCHO b. CH_3CHO c. $\text{C}_6\text{H}_5\text{CHO}$ d. CH_3CHO

12. Arsenic is an example of ____.

- a. Autocatalyst b. nanocatalyst
c. phase catalyst d. none of the above

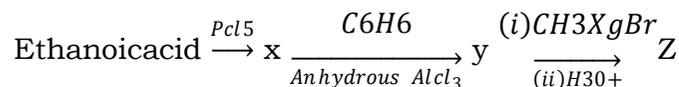
13. The shape of W_2O_5 sol is ____.

- a. rod shape b. disc shape c. spherical d. plate shape

14. Soapy water falls under which range of pH chart

- a. 12 b. 10 c. 11 d. 14

15. Predict the product z in the following series of reactions



- a. $(\text{CH}_3)_2\text{C}(\text{OH})\text{C}_6\text{H}_5$ b. $\text{CH}_3\text{CH}(\text{OH})\text{C}_6\text{H}_5$
c. $\text{CH}_3\text{CH}(\text{OH})\text{CH}_2\text{CH}_3$ d. CH_2OH



Part – II

Answer any six questions, Q.no:24 is compulsory: 6x2=12

16. Differentiate Buna-N and BUNA-S.
17. Define zwitterions? Give example.
18. What is swern oxidation? Mention the oxidising agent.
19. List any four applications of colloids.
20. Give the reaction and explain phenol is acidic in nature.
21. Derive the resonance structure of Benzene diazonium salt.
22. How will you prepare benzoic acid using Grignard reagent?
23. Write a note on sacrificial protection.

24. The K_a value for HCN is 10^{-9} . What is the P^H of 0.4m HCN solution?

Part – III

Answer any six of the following, Q.no:33 is compulsory: $6 \times 3 = 18$

25. Explain the buffer action in a basic buffer containing equimolar NH_4OH and NH_4Cl .

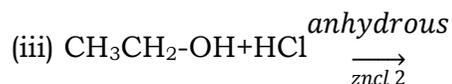
26. What are antioxidants?

27. Write down the possible isomers of the $C_4H_9NO_2$. Give their IUPAC names.

28. List the uses of formic acid and benzoic acid.

29. Write the following reactions:

(i) Nef carbonyl synthesis (ii) Friedel craft's reaction



30. Write the contrast action of promoter and catalytic poison.

31. Differentiate physisorption and chemisorption.

32. Define denaturation and list the importance of proteins.

33. What is the P^H of an aqueous solution obtained by mixing 6g of acetic acid and 8.2 gram of sodium acetate and making the volume equal to 500ml. [Given k_a for acetic acid is 1.8×10^{-5}]

Part – IV

$5 \times 5 = 25$

Answer the following questions:

34.a.(i) Derive Henderson-Hasselbach equation? (3M)

(ii). Define common Ion effect. (2M) OR

b.(i) Explain Debye-Huckel Onsager equation. (3M)

(ii) Define equivalent conductance. (2M)

35.a.(i) Write Freundlich adsorption isotherm. (3M)

(ii) What is chromatography. (2)

OR

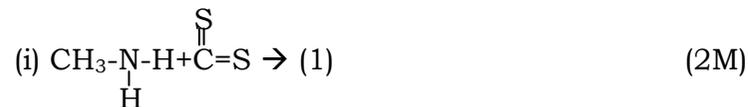
b) i) Write Saytzeff's rule. (3M)

ii) What is Popoff's rule. (2M)

36.a. i) Explain Aldol and Benzoin condensation.

OR

b. Write the following reaction.



(ii) Coupling reaction (2M) (iii) Schotten-Baumann reaction (1M)

37.a. Discuss the following preparation.

(i) Nylon 6-6 (2M) (ii) Bakelite (3M) OR

b.(i) What are vitamins? Classify. (3M)

(ii) Differentiate nucleoside and nucleotide. (2M)

38.a. Write the following reactions:

(i) Sabatier-Maihe method (2M)

(ii) Pthalein fusion (2M) (iii) Fehlings and Tollens test (1M)

OR

b.(i) Aniline does not undergo Friedel – Crafts reaction. Why? (2M)

(ii) Write faraday's second law. (2M)

(iii) What is Anomer? (1M)