

F.Y.B.Sc. (Chemistry) SEM- II
Question Bank
CHEM-1202: Organic & Inorganic Chemistry

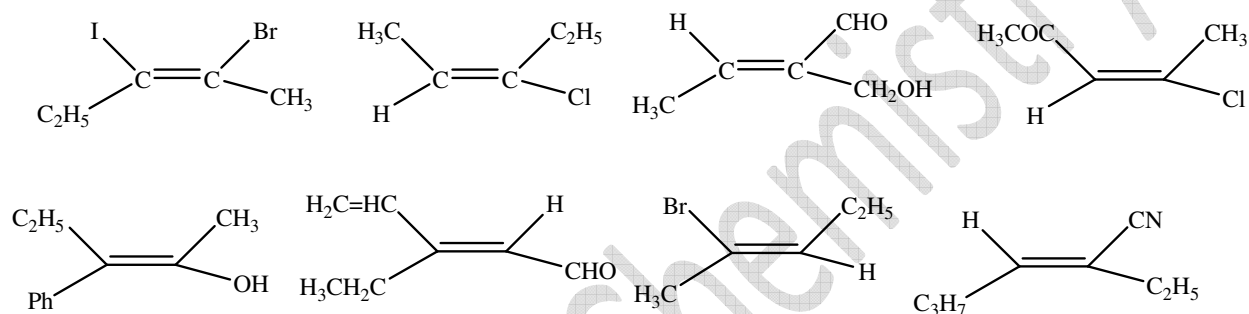
Section I: Organic Chemistry

A) Answer the following (1to2 marks)

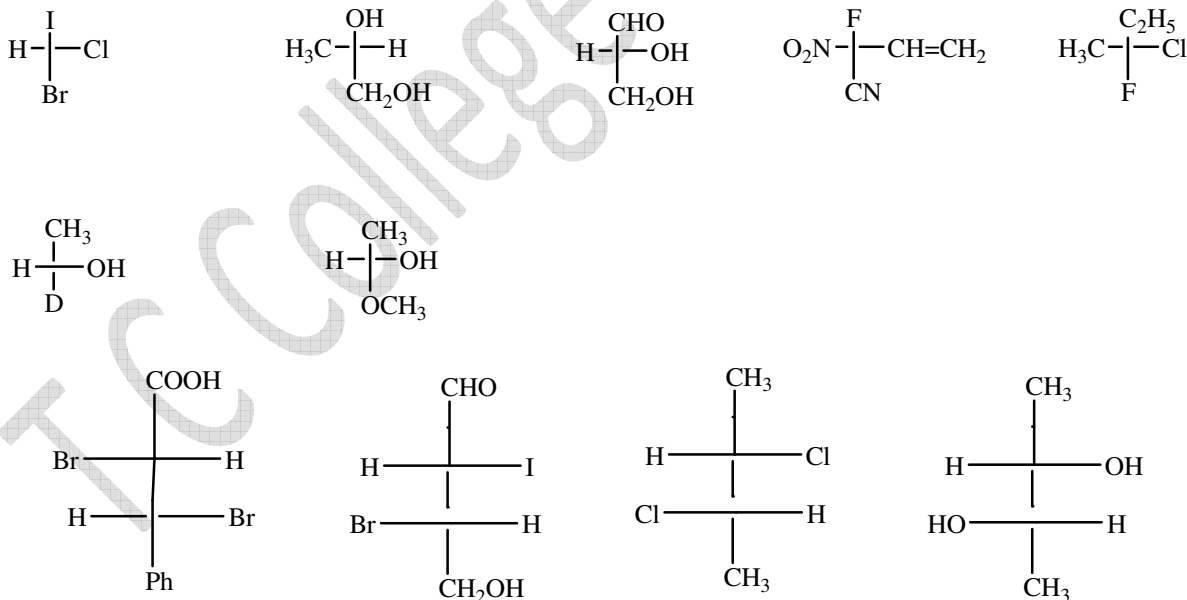
1. What is stereochemistry
2. Define -1. Enantiomers 2. Dextrorotatory compound
3. Define- 1. Configuration 2. Laevotatory compound
4. Define Dihedral angle
5. What is erythro isomer
6. What is threo isomers
7. Define Specific rotation
8. Define 1. Absolute Configuration 2. Plane polarised light.
9. What is asymmetric carbon
10. The rotation about C=C is restricted, explain.
11. 2- butene shows geometrical isomerism but 1- butene does not , explain.
12. Draw the structures of cis and trans isomers of 2-pentenes.
13. Draw all possible isomers of the compound having formula C_3H_6O .
14. Draw all possible isomers of the compound having formula C_2H_6O .
15. Define optical activity.
16. Explain the term- 1. Meso compound 2. Distereomers.
17. Ethylene does not show geometrical isomers, explain.
18. What is oxidation?
19. What is reduction?
20. Give the preparation of sodium hydroxide.
21. What is PCC?
22. Give two uses of pt and pd catalyst.
23. What is lindlar catalyst?
24. What is birch reduction?
25. Give preparation of $LiAlH_4$.
26. Write one reaction involving use for PCC.
27. whar is jones reagents?
28. How is perbenzoic acid prepared?
29. Give praparation of osmium tetraoxide.
30. What is carbanion?
31. Give the stability order of carbanion.
32. Write one example of claisen ester condensation.
33. List the factors which stabilize a carbanion.
34. What is crossed claisen ester condensation?

B) Answer the following (4 to 6 marks)

1. What is geometrical isomerism? Give its necessary conditions.
2. Write a note on- 1. Meso compound 2. Disteromers
3. Explain erythro and threo isomers with examples.
4. Explain Isomerism. Give classification of structural isomerism.
5. Explain the conformational isomerism in ethane with energy profile diagram.
6. Discuss the conformational isomerism in propane with energy profile diagram.
7. Explain the conformational isomerism in n-butane with energy profile diagram.
8. Assign E/Z isomers of the following.



9. Assign R/S configuration of the following



10. Discuss the mechanism of reduction of propanone by sodium boro hydride.
11. Give preparation and two uses of PCC.
12. Discuss cis-hydroxylation by osmium tetraoxide.
13. Give any application of sodium boro hydride.
14. What are epoxides? How are they formed? Give uses of epoxides.

15. Discuss the mechanism of reduction by Sn/HCl.
16. Discuss cis hydroxylation reaction by using KMnO₄.
17. Discuss the mechanism of reduction by LiAlH₄, give its two important application.
18. Discuss the mechanism of Birch reduction. Explain the function of ethanol in this reaction.
19. Discuss the trans hydroxylation reaction by using per acid.
20. Write a note on Claisen ester condensation.
21. What is reactive methylene group in ethyl acetoacetate? Give its one application.
22. Write a note to crossed Claisen ester condensation with suitable example.

Section II: Inorganic Chemistry

Q1 Attempt the following (1 to 2 Marks)

- 1) Give the general electronic configuration for 3A group
- 2) Draw the structure for ClF₃
- 3) Give the general electronic configuration for 4A group
- 4) Draw the structure for IF₇
- 5) Give the general electronic configuration for 5A group
- 6) Draw the structure for PCl₅
- 7) Give the general electronic configuration for 6A group
- 8) Draw the structure for BeF₂
- 9) Give the general electronic configuration for 7A group
- 10) Draw the structure for SF₆
- 11) Give the general electronic configuration for Zero group
- 12) Draw the structure for Al₂Br₆, H₂SO₄
- 13) Which element shows anomalous behavior in 3A group
- 14) Write outermost electron configuration for Antimony element.

Q2 Attempt the following (4 to 6 Marks)

- 1) Give the outer most electron configuration for 3A group and discuss 1) atomic size and ionic size 2) Oxidation state.
- 2) Give the outer most electron configuration for 4A group and discuss 1) atomic size and ionic size 2) Oxidation state.
- 3) Give the outer most electron configuration for 5A group and discuss 1) atomic size and ionic size 2) Oxidation state.
- 4) Give the outer most electron configuration for 6A group and discuss 1) atomic size and ionic size 2) Oxidation state.
- 5) Give the outer most electron configuration for 7A group and discuss 1) atomic size and ionic size 2) Oxidation state.
- 6) Give the anomalous behaviour for Carbon.
- 7) Give the anomalous behaviour for Nitrogen.
- 8) Give the anomalous behaviour for Oxygen.

- 9) Give the structure and bonding in Al_2Cl_6 .
- 10) Write note on oxyacids of sulphur.
- 11) Write note on oxyacids of Phosphorus.
- 12) Give the difference between Diamond and Graphite
- 13) Give the shapes and bonding in H_2SO_4
- 14) Draw the structure for 1) IF_7 2) BrF_5 3) ClF_3 4) ClF

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