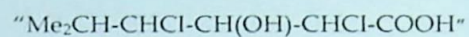


6. The reagent used in Clemmensen Reduction is:

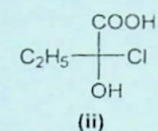
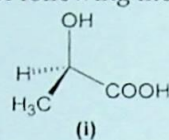
- a. Zn/Hg and HCl
 b. NH_2NH_2 and NaOH
 c. Zn and HCl
 d. NH_2NH_2 and EtONa

7. The total number of asymmetric carbon & stereoisomers of the following compound will be



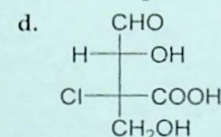
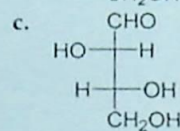
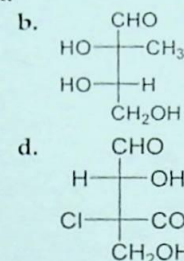
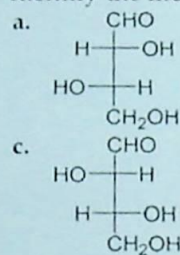
- a. 3 & 6
 b. 2 & 4
 c. 1 & 2
 d. 3 & 8

8. The configurations of following molecules (i) and (ii) are respectively

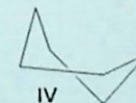
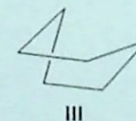
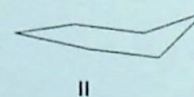
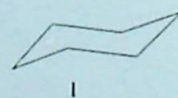


- a. S and R
 b. R and S
 c. S and S
 d. R and R

9. Identify the molecule with D-configuration:

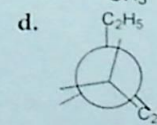
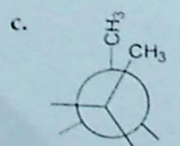
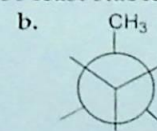
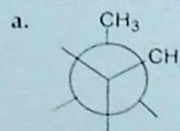


10. Cyclohexane has the following interconvertible conformations (I to IV). The most and the least stable of these are respectively

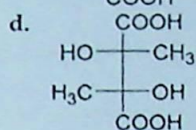
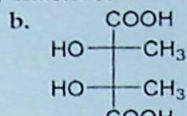
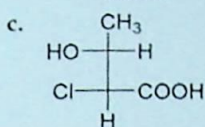
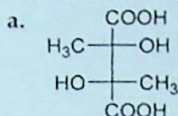


- a. I & II
 b. I & IV
 c. II & IV
 d. IV & II

11. Which of the following conformations will be least stable?



12. Which of the following molecule is optically inactive?



13. Brady's reagent is:

- a. R-Mg-X
c. 2,4-Dinitrophenylhydrazone

- b. 2,4-Dinitro phenylhydrazine
d. None of the above

14. Knoevenogel reaction is the synthesis of:

- a. α,β -Saturated acids
c. α,β -Unsaturated acids

- b. β -Unsaturated acids
d. β -Saturated acids

15. CH₃OH is an example of:

- a. Aprotic polar solvent
c. Aprotic non-polar solvent

- b. Protic polar solvent
d. Non-polar solvent

16. E² elimination reaction follow:

- a. One step mechanism
c. Three step mechanism

- b. Two step mechanism.
d. Four step mechanism

17. In Cannizaro reaction aldehyde undergo:

- a. Self-oxidation-reduction
c. Only self-reduction

- b. Only self-oxidation
d. Condensation

18. A low concentration of nucleophile favors which of the following?

- a. S_N² reaction
c. Both S_N¹ & S_N²

- b. S_N¹ reaction
d. None

19. In Aldol condensation reaction the substrate must have:

- a. One β -H
c. One β -C

- b. One α -H
d. One β -F

20. S_N² stands for:

- a. Substitution nucleophilic bimolecular
c. Substitution electrophilic bimolecular

- b. Substitution nucleophilic unimolecular
d. Substitution electrophilic unimolecular

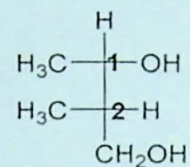
(Descriptive)

Time : 2 hr. 30 mins.

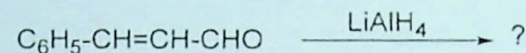
Marks : 50

[Answer question no.1 & any four (4) from the rest]

1. a) Mention (R/S) configurations of chiral centres 1 and 2 in the following molecule 3



- b) The product in the following oxidation reaction 2



- c) Define aldol condensation, Cannizzaro reaction. Show its proper mechanism for both the reaction. 5

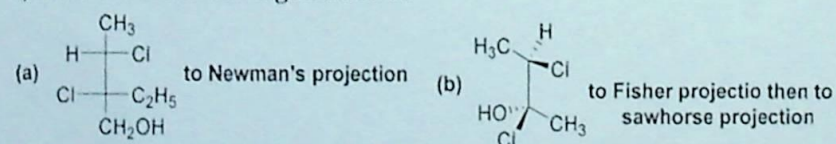
2. a) What is the difference between conformations and configurations of molecules? Illustrate with examples. 5

- b) Draw different conformations of n-butane. Indicate the most stable and least stable conformers of n-butane. Draw energy vs dihedral angle diagram for the conformers of n-butane. 5

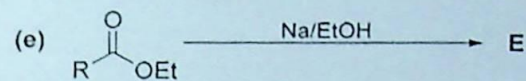
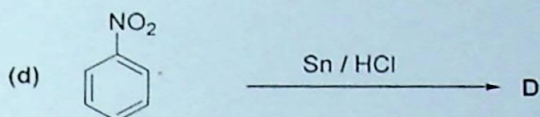
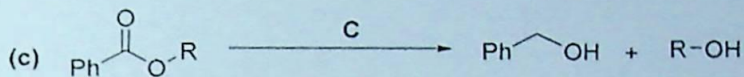
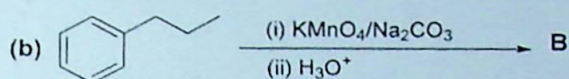
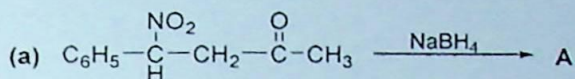
3. a) Why chair conformation of cyclohexane is more stable than boat conformation? Give reason. Draw Newman's projection for both these forms. Indicate axial and equatorial bonds in chair form and flagpole bonds in boat form. 5

- b) Methyl group in methyl cyclohexane can exist in axial or equatorial bond. Explain. 2

- c) Convert the following structures: 3

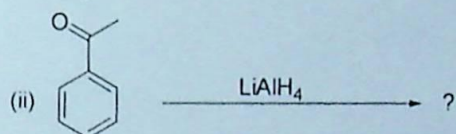
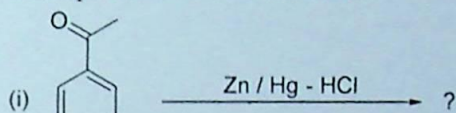


4. Write down the structures of the products/reagent A, B, C, D and E in the following reactions. 2×5=10



5. a) Write down the products with mechanism.

2+2=4



b) Write notes on: (any two)

3×2=6

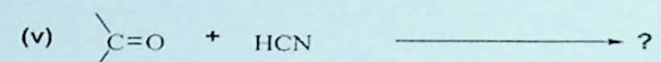
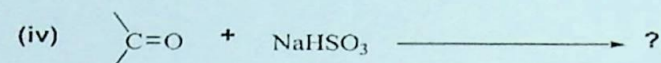
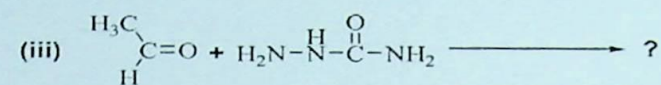
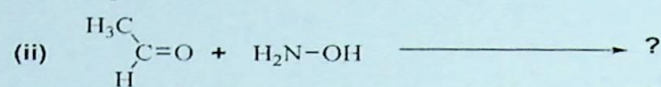
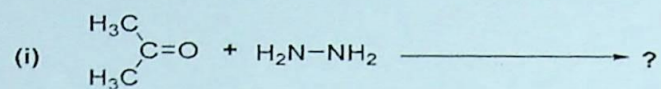
- i) Wolff-Kishner reduction
- ii) Resenmund reduction
- iii) Oppenauer oxidation.

6. Write down five differences between SN^1 and SN^2 reactions. Draw the energy profile diagram for SN^1 and SN^2 reaction mechanism. Give an example of aprotic polar solvent.

5+4+1=10

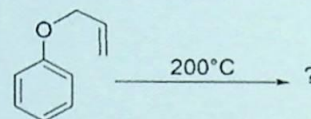
7. a) Complete the following reaction:

5×1=5



b) State the Markonikov's rule. Write down three factors affecting E1 reaction. 1+2

c) Complete the reaction and mention what type of reaction it is. 2



8. State saytzeff's rule and give one suitable example. Show three ways by which alkene is prepared. What is Knoevenogel reaction? Give its reaction and show its mechanism. 2+3+5=10

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