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(2063)

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B. Pharmacy 2nd Semester Examination

Phamaceutical Chemistry (Organic Chemistry)

HBP-108

Time : 3 Hours **Max. Marks : 80**

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/ continuation sheet will be issued.

Note : Candidates are required to attempt five questions in all selecting one question from each of the sections A, B, C and D of the question paper and subparts of the questions in section E is compulsory.

SECTION - A

1. (a) Explain the bonding and antibonding orbitals in detail.

   (b) Comment on the nucleophilicity and basicity of halides.

   (c) Write the note on wave equation. **(8+4+4)**

2. (a) Explain why phenols are acidic whereas alcohols are neutral?

   (b) Which can lose proton more easily, a methyl group bonded to cyclohexane or a methyl group bonded to benzene? And why?

   (c) Predict the relative basicity of CH_3F, CH_3OH and CH_3NH_2.

(d) Out of ($CH_3CH_2O^-$ and $(CH_3)_3CO^-$) anions which is better nucleophile? and which is better base? **(4+4+4+4)**

SECTION - B

3. Write the notes on the followings

   (a) Optical activities

   (b) Chirality

   (c) Conformational and configurational isomers

   (d) Geometrical and Optical isomerization **(4+4+4+4)**

4. (a) What are sequence rules for assigning the R and S configurations?

   (b) Discuss various methods for the resolution of enantiomers. **(8+8)**

SECTION - C

5. (a) Discuss the mechanism of metal-ammonia reduction of alkynes.

   (b) Explain why terminal alkynes are acidic in nature?

   (c) Explain the mechanistic details for acid catalyzed dehydration of alcohols.

   (d) Discuss the electrophilic substitution reactions in benzene. **(4+4+4+4)**

6. Give the reaction and mechanism of:

   (a) ozonolysis of alkene

   (b) hydroboration of alkene

   (c) polymerization of alkene

   (d) sulfonation of benzene **(4+4+4+4)**

SECTION - D

7. Give the reactions and mechanisms of:
   (a) Oxidation of aldehyde with Tollen's reagent
   (b) Reduction of aldehyde with $LiA1H_4$
   (c) Alkaline hydrolysis of esters
   (d) Acidic hydrolysis of amides **(4+4+4+4)**

8. Write the notes on the followings:
   (a) Carbene
   (b) Nitrene
   (c) Carbocations **(4+4+4+4)**

SECTION - E

9. Attempt all questions compulsory.
   (i) Draw the structure of optically active compound tartaric aid.
   (ii) What is necessary condition for a compound to show geometrical isomeris?.
   (iii) Give one method for the preparation of ester.
   (iv) How will you convert alcohols into ethers? Give one example.
   (v) Name one reagent which convert benzyl alcohol into benzaldehyde.
   (vi) Draw the energy profile diagram of S_N1 and S_N2 reactions.
   (vii) Give the product of heating of $CH_3CH_2CH_2$ CH_2CHOH in the presence of HCl and $ZnCl \rightarrow$
   (viii) Complete the f reaction: CHRROH + $K_2Cr_2O_7 \rightarrow$ **(8×2=16)**