

## Group A

Answer **AT LEAST THREE** questions from **this group**. Answers to all part of a question should be at the same place of the answer-script and in the same order as they appear in the question paper.

1. (a) Discuss the stereochemistry of Diels-Alder reaction  
(b) Of thermal cycloadditions, [4 + 2] is easy and [2 + 2] is difficult. Justify it with the molecular orbital theory. [8+12]
2. The stereochemistry of the triene-cyclohexadiene interconversions is opposite to that of the diene-cyclobutene interconversions. Explain with the knowledge of Molecular Orbital theory. [20]
3. Explain with examples:  
(i) Enantiomers and Diastereomers  
(ii) CIP Sequence rule  
(iii) E and Z [6+8+6]
4. Discuss in detail how to interpret an <sup>1</sup>H NMR spectrum. Give a structure, with explanation, consistent with the following set of NMR data.  
C<sub>9</sub>H<sub>10</sub>  
a quintet, δ 2.04, 2H  
b triplet, δ 2.91, 4H  
c singlet, δ 7.17, 4H [15+5]
5. Write notes on:  
(i) Cotton effect  
(ii) FLUORESCENCE AND PHOSPHORESCENCE  
(iii) DIELECTRIC CONSTANT AND INDUCED POLARIZATION [5+7+8]

B Pharmacy Second Year 2nd Semester Examination 2017

Pharmaceutical Chemistry - VII (Advanced organic)

Group- B

Time - 3 Hours

Answer atleast one question from this group.

Full marks- 100

Q6. a) Explain

i) 1-Chloro-2,4-dinitro benzene forms amino substituted dinitrobenzene with dimethylamine but reaction fails with chlorobenzene under same conditions:

ii) 2,4,6-trinitroanisole (I) treated with potassium ethoxide and 2,4,6-trinitrophenetole (II) treated with potassium methoxide produces mixture of I & II.

III) Reactivity of vinyl chloride and allylchloride differs.

IV) Acraldehyde does not produce aldol condensation in presence of alkali but cleavage the molecule.

V) Crotyl alcohol produces a mixture of crotylbromide and methyl vinyl carbanyl bromide.

2x5= 10

b) i) What is Cine-substitution. Explain with reactions.

ii) How do you distinguish  $\text{MeCH}=\text{CHCH}_2\text{CHO}$  (A) from  $\text{MeCH}_2\text{CH}=\text{CHCHO}$  (B) by chemical method.

iii) Convert  $\text{MeCH}=\text{CHCOOH}$  into  $\text{MeCH}(\text{CH}_2\text{CO}_2\text{Et})_2$

iv) Suggest a method for the synthesis of  $\begin{array}{c} \text{Me}_2\text{CCH}_2\text{COCH}_3 \\ | \\ \text{ME}_2\text{CCH}_2\text{COCH}_3 \end{array}$

2.5x4=10

Q7. a) Write reaction steps for the following name reactions.

2 x 5 = 10

i) Prileschaiev's reaction ii) Oppenaur oxidation iii) Balz-Schiemann reaction iv) Wurtz-Fittig reaction v) Kolbe-Schmitt reaction.

b) Answer the following questions giving reaction conditions.

1 x 10 = 10

i) N-methyl acetamide from keten

ii) Chloroacetylchloride from keten

iii) Oleyl alcohol from Butyloleate

- iv) Ethylpyrazoline-3-carboxylate from ethyl acrylate
- v) Methylmethacrylate from acetone
- vi) Crotonic acid from acetaldehyde
- vii) Isophoron from acetone
- viii) Triacetoneamine from 4-methylpent-3-ene-2-one
- ix) Dimedone from mesityloxide
- x) Allyl alcohol from glycerol.