Roll No. .....

(01/22-II)

# 5170

## B. Sc. EXAMINATION

(First Semester)

CHEMISTRY

Paper-III (CH-103)

Organic Chemistry

*Time : Three Hours* *Maximum Marks : 27*

**Note :** Attempt *Five* questions in all, selecting *two* questions from each Section. Q. No. 1 is compulsory.

1. (a) Define localized and delocalized bonds with suitable examples.

   (b) Define resonance effect. Give its applications.

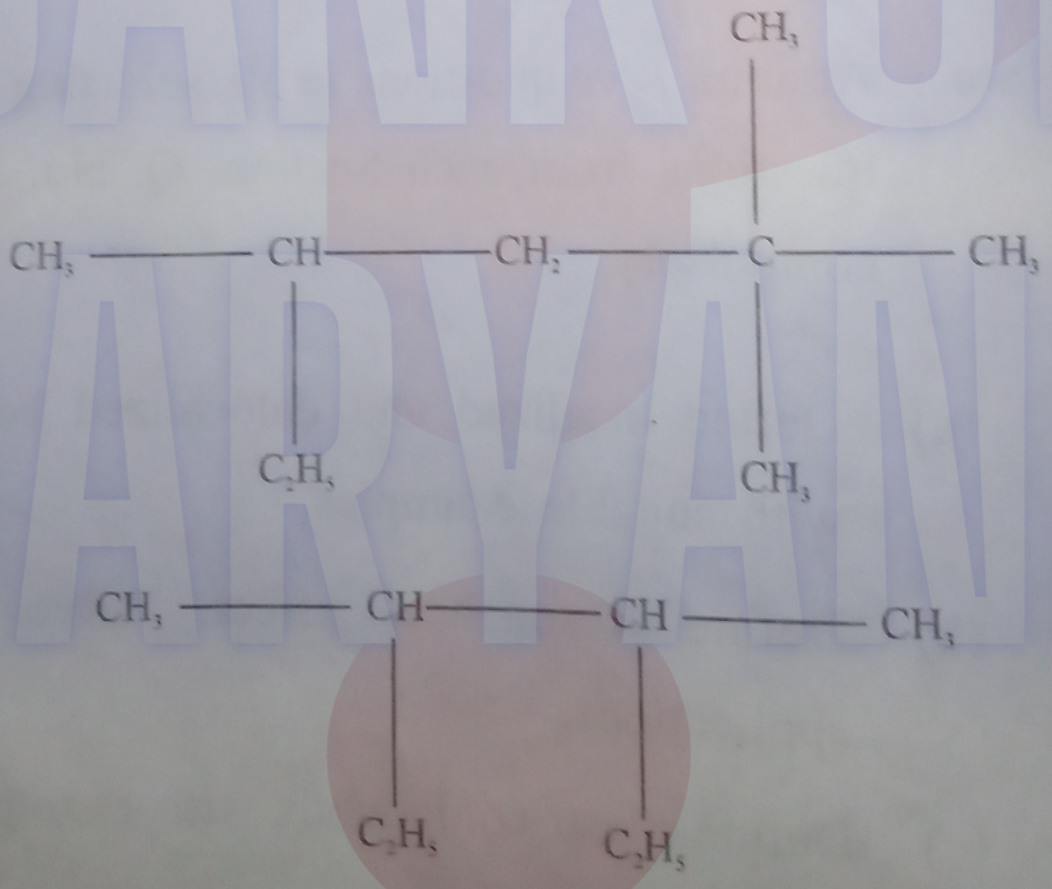
   (c) Define meso compounds with examples.

(d) Write various conformations of cyclohexane and give their order of stability.

(e) What are electrophiles and nucleophiles ? Classify the following as electrophiles and nucleophiles : $SO_3$, $AlCl_3$, $NO_2^+$, $C_2H_5NH_2$.

(f) 3, 3-dimethyl pentane, 2-methyl hexane, n-heptane.

(g) Write IUPAC names of the following molecules :



(h) The boiling points of *n*-Alkanes increase as the molecular mass increase. $7 \times 1 = 7$

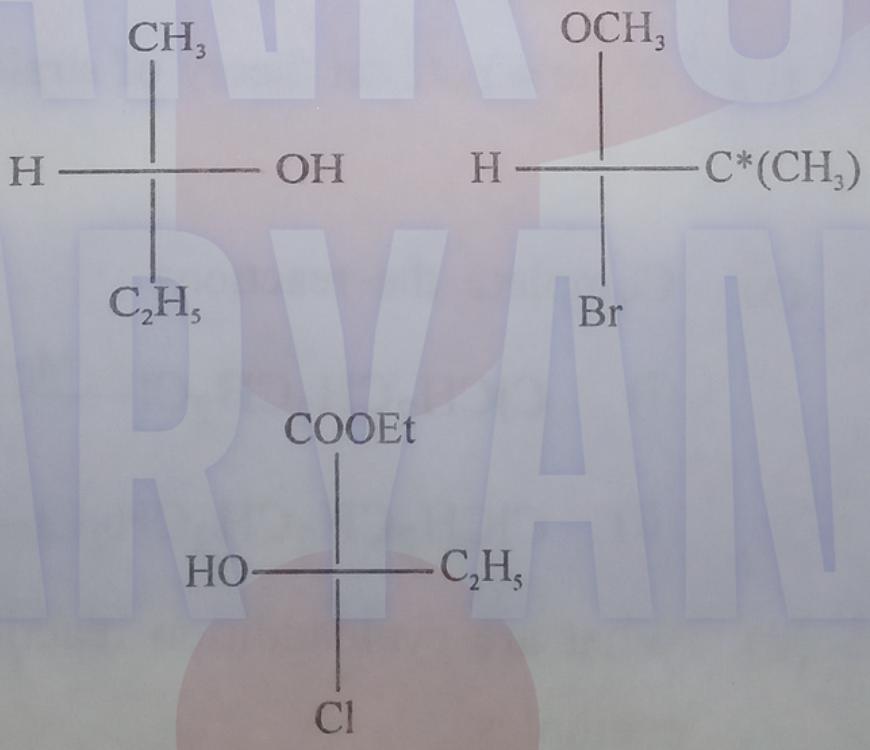
## Section A

2. (a) What is inductive effect ? How does it help in explaining the relative strength of organic acids ? 3

(b) Define and explain hyperconjugation. Why is it called no bond resonance ? 2

3. (a) Define Walden inversion with suitable example. 2

(b) Assign R & S configuration to the following compounds : 3



4. (a) What are axial and equatorial bonds in cyclohexane ? 1.5

(b) Define various elements of symmetry. 2

(c) What are advantages of E-Z system of nomenclature over cis and trans system ? 1.5

## Section B

5. (a) In what ways a covalent bond is fissioned and what are its results ? 2

(b) Write a short note on free radicals. 3

6. (a) Explain Kolbe's reaction of formation of alkanes. 3

(b) Write a note on theory of strainless rings. 2

7. (a) Complete the reactions : 2

(i) $ClCH_2CH_2CH_2Cl \xrightarrow{Mg}$

(ii) $ClCH_2CH_2CH_2CH_2Cl \xrightarrow{Mg}$.

(b) What are cycloaddition reactions ? Give examples. 3