

## Topic : General Organic Chemistry

## Type of Questions

Single choice Objective ('-1' negative marking) Q.1 to Q.5

(3 marks, 3 min.)

M.M., Min.

[15, 15]

Multiple choice objective ('-1' negative marking) Q.6

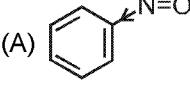
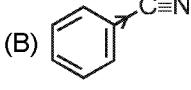
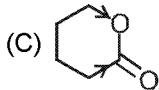
(4 marks, 4 min.)

[4, 4]

Subjective Questions ('-1' negative marking) Q.7 to Q.8

(4 marks, 5 min.)

[8, 10]

- Inductive effect is a permanent effect and is distance dependent.  
(A) Always      (B) Some time      (C) never      (D) Can not decide
- Which of the following statement is CORRECT regarding the inductive effect ?  
(A) electron-donating inductive effect(+I effect) is generally more powerful than electron-withdrawing inductive effect(-I effect)  
(B) it implies the shifting of  $\sigma$  electrons from more electronegative atom to the lesser electronegative atom in a molecule  
(C) it implies the shifting of  $\sigma$  electrons from less electronegative atom to the more electronegative atom in a molecule  
(D) it increases with increase in distance.
- In which of the following species, incorrect direction of Inductive effect is/are shown ?  
(A)  (B)  (C)  (D)  $\text{CH}_3 - \text{CH}_2 \leftarrow \text{MgBr}$
- Maximum -I effect is exerted by the group  
(A)  $\text{C}_6\text{H}_5$       (B)  $-\text{OCH}_3$       (C)  $-\text{Cl}$       (D)  $-\text{NH}_2$
- Which order of I effect is incorrect.  
(I)  $-\overset{\oplus}{\text{N}}(\text{CH}_3)_3 > -\overset{\oplus}{\text{S}}(\text{CH}_3)_2$       [-I]      (II)  $-\text{OCH}_3 > -\text{OH}$       [-I]  
(III)  $-\text{F} > -\text{Cl}$       [-I]      (IV)  $-\text{CH}_3 > -\overset{\ominus}{\text{O}}$       [+I]  
(A) II, III & IV      (B) III & IV      (C) IV only      (D) all
- \* Which of the following statement/s is/are correct for the inductive effect ?  
(A) It is a permanent effect      (B) It transmits through sigma electrons  
(C) It is represented by  $\longleftrightarrow$       (D) It is represented by  $\longrightarrow$  or  $\longleftarrow$ .
- In which  $\text{C} - \text{C}$  bond of  $\overset{3}{\text{CH}_3} - \overset{2}{\text{CH}_2} - \overset{1}{\text{CH}_2} - \text{Br}$ , the inductive effect is expected to be the least.
- How many groups show -I effect?  
 $-\text{CH}_3$ ,  $-\overset{\oplus}{\text{NH}_3}$ ,  $-\text{OH}$ ,  $-\text{O}^\ominus$ ,  $-\text{N}(\text{CH}_3)_2$ ,  $-\text{SO}_3\text{H}$ ,  $-\text{CHO}$ ,  $-\text{Cl}$ ,  $-\text{COO}^\ominus$

# Answer Key

## DPP No. # 11

1. (A)      2. (C)      3. (A)      4. (C)      5. (C)  
6.\* (ABD)  
7. Inductive effect is expected to be the least in the bond between carbon 3 and carbon 2.      8. 6

# Hints & Solutions

## DPP No. # 11

2. ex.  $\text{CH}_3 \xrightarrow{\delta+} \text{CH}_2 \xrightarrow{\delta+} \text{Cl}^{\delta-}$

3. Case A has incorrect direction of I-effect.  
4. Maximum – I effect – Cl.  
5. Self explanatory.  
6. Self explanatory.  
7. Magnitude of inductive effect diminishes as the number of intervening bonds increases. Hence, the effect is least in the bond between carbon 3 and carbon 2.