

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

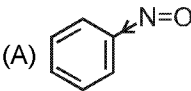
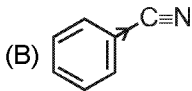
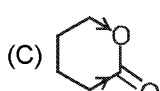
(4 marks, 4 min.)

[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 σ electrons from more electronegative atom to the lesser electronegative atom in a molecule
 (C) it implies the shifting of σ 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) C_6H_5 (B) $-\text{OCH}_3$ (C) $-\text{Cl}$ (D) $-\text{NH}_2$
- Which order of I effect is incorrect.
 (I) $-\text{N}^+(\text{CH}_3)_3 > -\text{S}^+(\text{CH}_3)_2$ [-I] (II) $-\text{OCH}_3 > -\text{OH}$ [-I]
 (III) $-\text{F} > -\text{Cl}$ [-I] (IV) $-\text{CH}_3 > -\text{O}^-$ [+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 C - 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?
 $-\text{CH}_3$, $-\text{NH}_3^+$, $-\text{OH}$, $-\text{O}^-$, $-\text{N}(\text{CH}_3)_2$, $-\text{SO}_3\text{H}$, $-\text{CHO}$, $-\text{Cl}$, $-\text{COO}^-$



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. $\overset{\delta+}{\text{CH}_3} \rightarrow \overset{\delta+}{\text{CH}_2} \rightarrow \overset{\delta-}{\text{Cl}}$
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.

