

Topic : General Organic Chemistry
Type of Questions
M.M., Min.

Single choice Objective ('-1' negative marking) Q.1 to Q.4

(3 marks, 3 min.)

[12, 12]

Multiple choice objective ('-1' negative marking) Q.5 to Q.6

(4 marks, 4 min.)

[8, 8]

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

(4 marks 5 min.)

[4, 5]

Match the Following (no negative marking) Q.8

(8 marks, 10 min.)

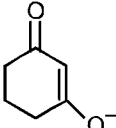
[8, 10]

1. Identify the correct statements

 (i) All C – C bonds in  are equal.

 (ii) All C – C bonds in $\text{CH}_2 = \text{CH} - \text{CH} = \text{CH}_2$ are equal.

 (iii) All C – O bonds in $\text{CH}_3 - \text{C} \begin{matrix} \text{O} \\ \diagup \\ \text{O}^- \end{matrix}$ are equal.

 (iv) All C – O bond in  are equal.

(A) i, ii, iii, iv

(B) i, iii, iv

(C) i, ii, iii

(D) ii, iii, iv

2. Among the following alkenes the order of decreasing stability is :

(I) 1-butene

(II) cis-2-butene

(III) trans-2-butene

(A) II > I > III

(B) III > I > II

(C) I > II > III

(D) III > II > I

3. Which of the following molecule has the shortest carbon-carbon single bond length ?

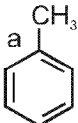
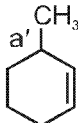
 (A) $\text{CH}_2 = \text{CH} - \text{C} \equiv \text{CH}$

 (B) $\text{CH}_2 = \text{CH} - \text{C} \equiv \text{N}$

 (C) $\text{CH}_2 = \text{CH} - \text{CH} = \text{O}$

 (D) $\text{CH}_2 = \text{CH} - \text{CH} = \text{CH}_2$

4. The incorrect orders for bond length are :

 (A)   ($a' > a$)

 (B) $\text{CH}_3 - \text{C} \begin{matrix} \text{b} \\ \diagup \\ \text{NH}_2 \end{matrix} \begin{matrix} \text{b}' \\ \text{NH}_2 \end{matrix}$ ($b' = b$)

 (C) $\text{CH}_3 - \text{C} \begin{matrix} \text{c} \\ \diagup \\ \text{O} \end{matrix} \text{ONa}$ ($c > c'$)

 (D)  ($d > d'$)

5*. Which of the following statements are correct.

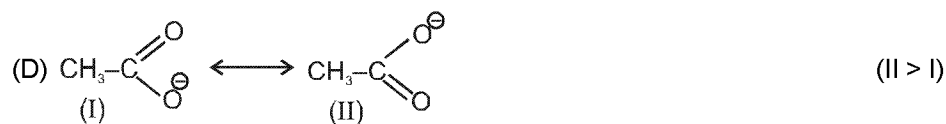
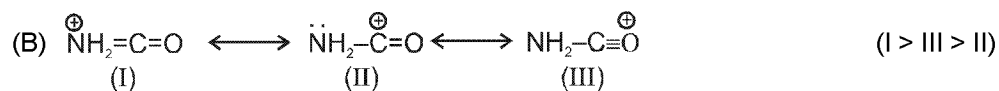
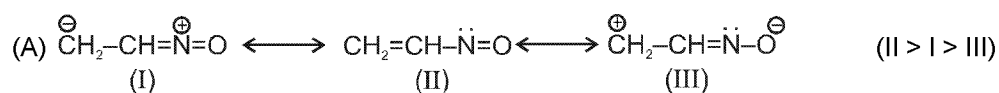
(A) I effect is permanent polarisation of sigma bond pair of electrons in the molecule.

(B) In resonating structures the hybridisation of atoms do not change.

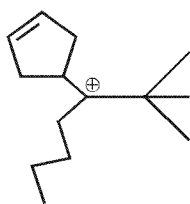
(C) In Hyperconjugative structures the hybridisation of carbon atom change.

(D) Presence of methyl group on an anion always destabilises the anion.

6*. Which of the following is/are correctly ordered for resonance stability



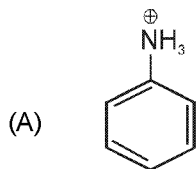
7. The total number of contributing structures showing hyperconjugation (involving C–H bonds) for the following molecule is



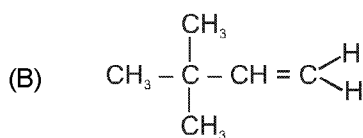
8. Match the compounds given in column I with their electronic effects mentioned in column II

Column I

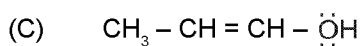
Column II



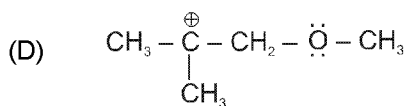
(p) Inductive effect



(q) Delocalisation of π electron



(r) Hyperconjugation



(s) Mesomeric effect

Answer Key

DPP No. # 4

- | | | | | |
|----------|--------|---|--------|-----------|
| 1. (B) | 2. (D) | 3. (B) | 4. (C) | 5*. (ABD) |
| 6*. (AB) | 7. 7 | 8. $(A \rightarrow p, q), (B \rightarrow p), (C \rightarrow p, q, r, s), (D \rightarrow p, r).$ | | |

Hints & Solutions

DPP No. # 4

4. Due to H.C. bond length decreases.