ORGANIC CHEMISTRY

DPP

DAILY PRACTICE PROBLEMS

DPP No. 4

Total Marks : 32

Max. Time : 35 min.

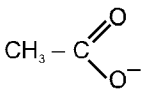
Topic : General Organic Chemistry

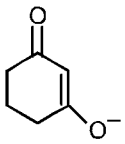
Type of Questions		M.M., Min.
Single choice Objective ('–1' negative marking) Q.1 to Q.4	(3 marks, 3 min.)	[12, 12]
Multiple choice objective ('–1' negative marking) Q.5 to Q.6	(4 marks, 4 min.)	[8, 8]
Subjective Questions ('–1' negative marking) Q.7	(4 marks 5 min.)	[4, 5]
Match the Following (no negative 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 $CH_2 = CH - CH = CH_2$ are equal.

(iii) All C – O bonds in  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

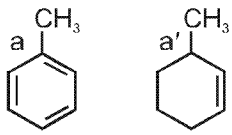
(A) II > I > III (B) III > I > II (C) I > II > III (D) III > II > I

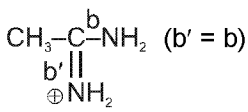
3. Which of the following molecule has the shortest carbon-carbon single bond length ?

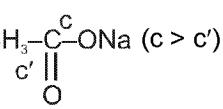
(A) $CH_2 = CH - C \equiv CH$ (B) $CH_2 = CH - C \equiv N$

(C) $CH_2 = CH - CH = O$ (D) $CH_2 = CH - CH = CH_2$

4. The incorrect orders for bond length are :

(A)  (a′ > a)

(B)  (b′ = b)

(C)  (c > c′)

(D)  (d > d′)

5*. Which of the following statements are correct.

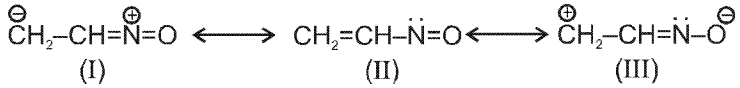
(A) I effect is permanent polarisation of sigma bond pair of electrons in the molecule.

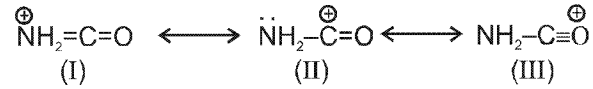
(B) In resonating structures the hybridisation of atoms do not change.

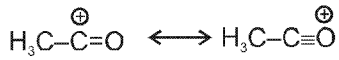
(C) In Hyperconjugative structures the hybridisation of carbon atom change.

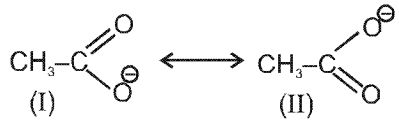
(D) Presence of methyl group on an anion always destabilises the anion.

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

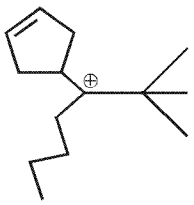
(A)  (II > I > III)

(B)  (I > III > II)

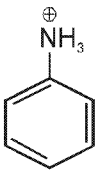
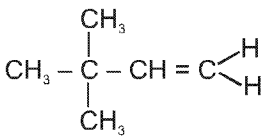
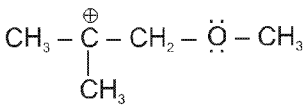
(C)  (I > II)

(D)  (II > I)

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**
(A)		(p)	Inductive effect
(B)		(q)	Delocalisation of π electron
(C)	$CH_3 - CH = CH - \ddot{O}H$	(r)	Hyperconjugation
(D)		(s)	Mesomeric effect

Answer Key

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1.	(B)	**2.**	(D)	**3.**	(B)	**4.**	(C)	**5*.**	(ABD)
6*.	(AB)	**7.**	7	**8.**	(A → p, q), (B → p), (C → p, q, r, s), (D → p, r).				

Hints & Solutions

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