ORGANIC CHEMISTRY

DPP

DAILY PRACTICE PROBLEMS

DPP No. 6

Total Marks : 35

Max. Time : 37 min.

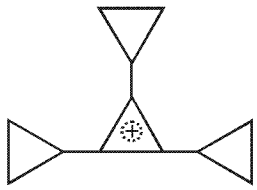
Topic : General Organic Chemistry

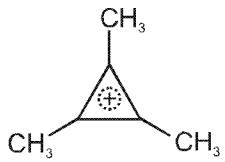
Type of Questions		M.M., Min.
Single choice Objective ('–1' negative marking) Q.1 to Q.5	(3 marks, 3 min.)	[15, 15]
Multiple choice objective ('–1' negative marking) Q.6 to Q.7	(4 marks, 4 min.)	[8, 8]
Subjective Questions ('–1' negative marking) Q.8	(4 marks 5 min.)	[4, 5]
Match the Following (no negative marking) Q.9	(8 marks, 10 min.)	[8, 10]

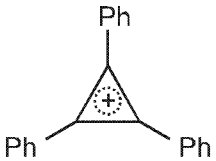
1. Which carbonium ion is highly stable ?

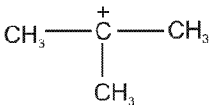
(A) $CH_2 = CH\overset{+}{C}H_2$ (B) $(CH_3)_3C^+$ (C) Ph_3C^+ (D) $(CH_3)_2CH^+$

2. The correct order of stability of following carbocation is :

(I) 

(II) 

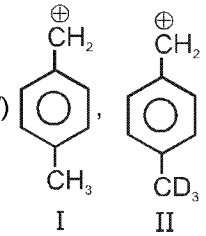
(III) 

(IV) 

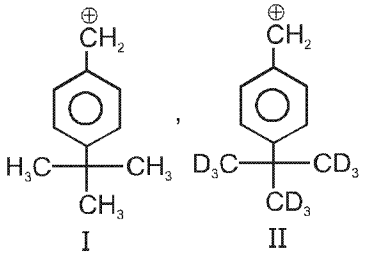
(A) (III) > (II) > (I) > (IV) (B) (II) > (III) > (I) > (IV)

(C) (I) > (III) > (IV) > (II) (D) (I) > (III) > (II) > (IV)

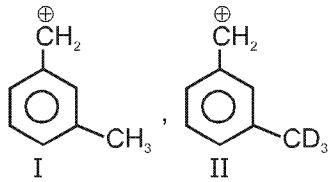
3. Observe each pair of cations. In which case (s) first is more stable than the second :

(W) 

I II

(X) 

I II

(Y) 

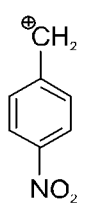
I II

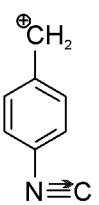
(Z) $CCl_3-CH_2-\overset{\oplus}{C}H_2$, $CCl_3-\overset{\oplus}{C}H-CH_3$

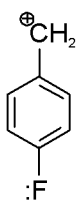
I II

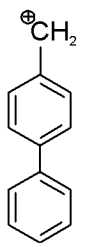
(A) Only in W (B) Only in X and Y (C) Only in Z (D) Only in W and Z

4. The most stable carbocation is :

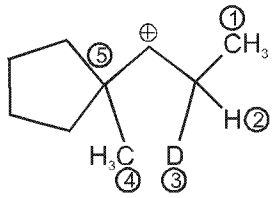
(A) 

(B) 

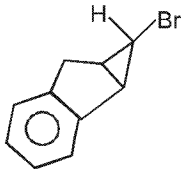
(C) 

(D) 

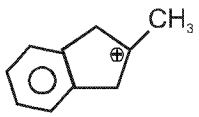
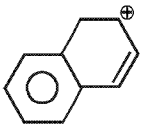
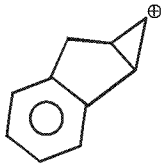
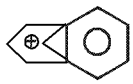
5. In the following carbocation; the most stable rearranged carbocation is formed by migration of group.



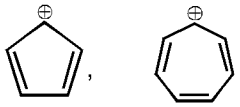
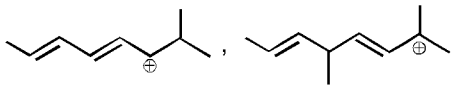
(A) CH_3 (1) (B) CH_3 (4) (C) C—C bond (5) (D) D (3)

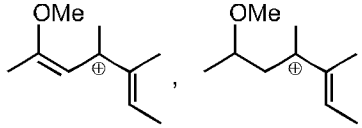
6.  $\xrightarrow{Ag^{\oplus}}$ Rearranged Carbocation + AgBr

Rearranged carbocation can not be :

(A)  (B)  (C)  (D) 

7. In which of the following first carbocation is more stable than second one ?

(A)  (B) 

(C) $CH_3 - O - \overset{\oplus}{C}H - CH_3$, $CH_3 - \underset{CH_3}{\overset{\oplus}{C}} - CH_2 - CH_3$ (D) 

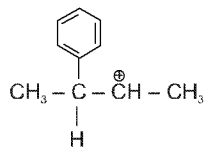
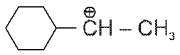
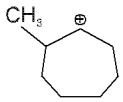
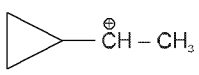
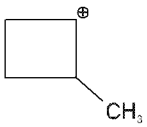
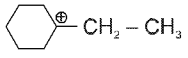
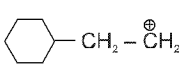
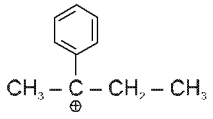
8. How many carbocations given below are more stable than sec. butyl carbocation

t-butyl carbocation Benzyl carbocation Allyl carbocation

Cyclopropenyl cation Tropylium cation n- butyl carbocation

cyclopropylmethyl carbocation

9. Match the carbocation (I) with the most stable rearranged carbocation (II).

(I)	(II)
(A) 	(p) 
(B) 	(q) 
(C) 	(r) 
(D) 	(s) 

Answer Key

DPP No. # 6

1.	(C)	**2.**	(D)	**3.**	(D)	**4.**	(D)	**5.**	(C)
6.	(ACD)	**7.**	(BCD)	**8.**	6	**9.**	(A – s) ; (B – r) ; (C – q) ; (D – p)		

Hints & Solutions

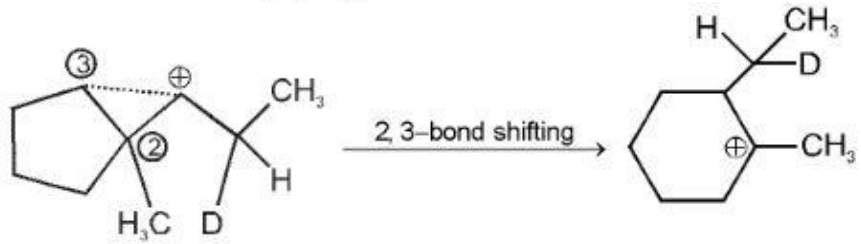
DPP No. # 6

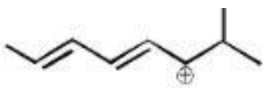
2. (I) > (III) > (II) > (IV)

3. In (W) since C–H bond is weaker than C–D bond so hyperconjugation stability is more in I.
In (X) only +I effect is present which is more for $-C(CD_3)$.
In (Y) only +I which is more for $-CD_3$
In (Z) –I effect of $-CCl_3$ group will make II cation highly unstable.

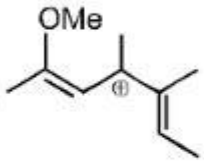
4. e^- with drawing group decreases stability

5. Due to C—C bond (5) migration it would be converted into 6-membered ring.



7. (B)  has extended conjugation.

(C) $CH_3 - O - \overset{\oplus}{C}H - CH_3$ has +M effect of $-OCH_3$.

(D) 

after delocalisation gets +M effect of –OMe.

8.