ORGANIC CHEMISTRY

DPP

DAILY PRACTICE PROBLEMS

DPP No. 23

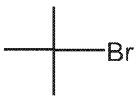
Total Marks : 30

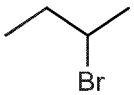
Max. Time : 32 min.

Topic : Alcohols, Phenols and Ethers (Reaction Mechanism)

Type of Questions		M.M., Min.
Single choice Objective ('–1' negative marking) Q.1 to Q.3	(3 marks 3 min.)	[9, 9]
Multiple choice objective ('–1' negative marking) Q.4	(4 marks 4 min.)	[4, 4]
Subjective Questions ('–1' negative marking) Q.5 to Q.6	(4 marks 5 min.)	[8, 10]
Comprehension ('–1' negative marking) Q.7 to Q.9	(3 marks 3 min.)	[9, 9]

1. Correct order of E_2/S_N2 ratio is :

P = 

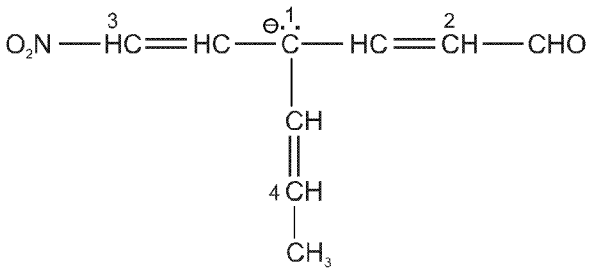
Q = 

R = CH_3–Br

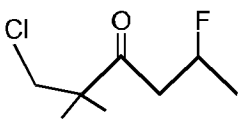
S = CH_3–CH_2–Br

(A) P > Q > S > R (B) P > Q > R > S (C) R > S > Q > P (D) P > S > Q > R

2. The carbanion is most nucleophilic when the –ve charge is present at



(A) 1 (B) 2 (C) 3 (D) 4

3.  NaOH, Δ → (Product)

The major product of the above reaction is obtained by mechanism

(A) S_N2 (B) E2 (C) E1cB (D) S_N2, E2 mixed mechanism

4*. In which reaction product formation takes place by Hoffmann rule ?

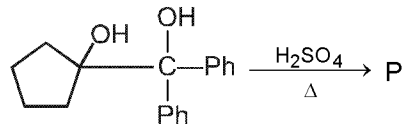
(A) $CH_3-CH_2-\underset{\underset{Br}{|}}{CH}-CH_3 \xrightarrow[\Delta]{t\text{-}BuO^{\ominus}K^{\oplus}}$

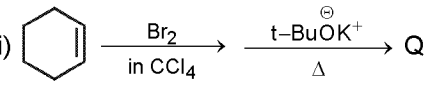
(B) $CH_3-CH_2-\underset{\underset{F}{|}}{CH}-CH_3 \xrightarrow[\Delta]{CH_3CH_2O^{\ominus}K^{\oplus}}$

(C) $CH_3-CH_2-\underset{\underset{CH_3}{|}}{CH}-\overset{\oplus}{N}(CH_3)_3 \xrightarrow[\Delta]{OH^{\ominus}}$

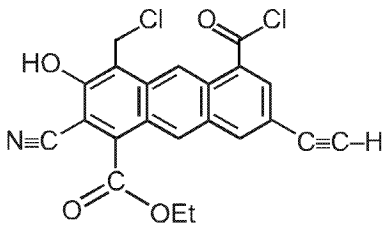
(D) $CH_3-CH_2-\underset{\underset{\oplus S(CH_3)_2}{|}}{CH}-CH_3 \xrightarrow[\Delta]{OH^{\ominus}}$

5. Write the structure of final product of each of the following :

(i) 

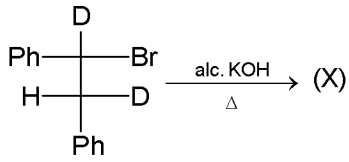
(ii) 

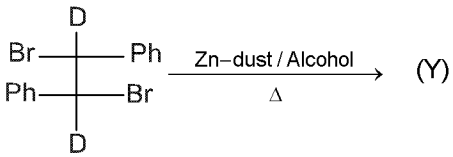
6. How many moles of MeMgI will be conssumed by one mole of the following compound.

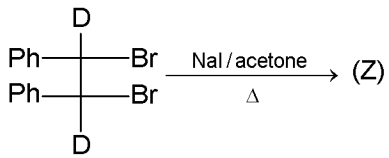


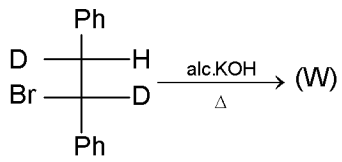
Comprehension #

Observe the following reactions (i) to (iv) and answer questions

(i) 

(ii) 

(iii) 

(iv) 

7. X and Y are

(A) Positional isomers
(B) Geometrical isomers
(C) Identical compounds
(D) Optical isomers

8. X and Z are

(A) Identical compounds
(B) Geometrical isomers
(C) Structural isomers
(D) Homologues

9. X and W are

(A) Identical compounds
(B) Optical Isomers
(C) Geometrical isomers
(D) Positional isomers

Answer Key

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1.	(D)	**2.**	(C)	**3.**	(B)	**4.**	(A,C,D)
5*.	(A,B,C,D)	**6*.**	(A,B,C,D)	**7.**	True	**8.**	(A → t) ; (B → p,r) ; (C → p) ; (D → s)

9. The better yield will be obtained by using the secondary halide, 1-bromo-1-phenylthane, because the desired reaction is E2.

Hints & Solutions

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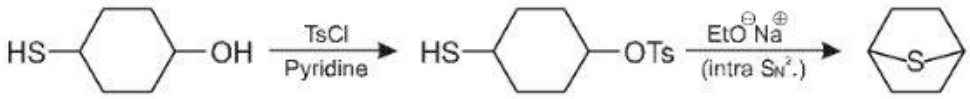
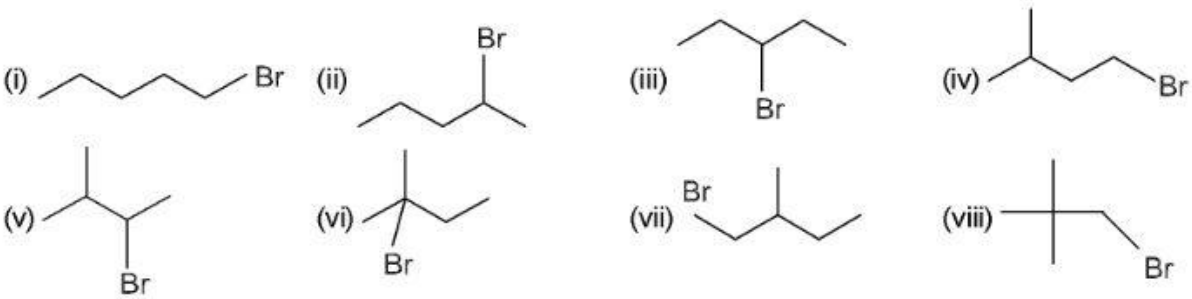
3.



4.



Total 8 structural isomers.
(viii) is inert towards E-2
(ii) gives three alkenes in E-2

5*. Strong electronegative group (F, $\overset{+}{N}R_3$, $\overset{+}{S}R_2$) exert strong - I due to this reaction followed by E1cB mechanism. t-$BuO^{\ominus}$ also give Hoffmann product.

6*. C_2H_5OH give S_N1 and E1 reaction, so all products can be formed.

7. The cleavage of C–D bond is more difficult than the cleavage of C–H bond.

8. A $\longrightarrow$ t B $\longrightarrow$ p,r C $\longrightarrow$ p D $\longrightarrow$ s

9. The better yield will be obtained by using the secondary halide, 1-bromo-1-phenylthane, because the desired reaction is E2.