

JEE MAIN HALOALKANES AND HALOARENES — MECHANISM AND REACTIVITY OF S_N1 AND S_N2 — PYQS

Max. Marks: 48

Questions: 12

Section A (MCQ) — 12 questions

Q.1 Given below are two statements :

Statement-I: Benzyl chloride reacts faster in S_N1 mechanism than ethyl chloride.

Statement-II: Ethyl carbocation intermediate is less stabilized by hyperconjugation than benzyl carbocation by resonance.

In the light of the above statements, choose the correct answer from the options given below :

[JEE Main 2026 (Online) 2nd April Morning Shift]

- (1) Both Statement-I and Statement-II are true
- (2) Both Statement-I and Statement-II are false
- (3) Statement-I is true but Statement-II is false
- (4) Statement-I is false but Statement-II is true

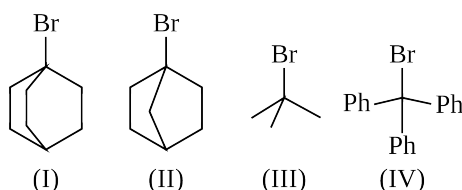
Scan or tap for the full solution



Q.2 The correct order of the rate of reaction of the following reactants with nucleophile by S_N1 mechanism is :

(Given : Structures I and II are rigid)

[JEE Main 2026 (Online) 22nd January Morning Shift]



- (1) $I < II < III < IV$
- (2) $II < I < III < IV$
- (3) $III < I < II < IV$
- (4) $IV < III < II < I$

Scan or tap for the full solution



Q.3 The correct order of reactivity of CH_3Br in methanol with the following nucleophiles is F^- , I^- , $C_2H_5O^-$ and $C_6H_5O^-$

[JEE Main 2026 (Online) 22nd January Morning Shift]

- (1) $I^- > C_2H_5O^- > C_6H_5O^- > F^-$
- (2) $I^- > F^- > C_6H_5O^- > C_2H_5O^-$
- (3) $I^- > C_6H_5O^- > F^- > C_2H_5O^-$
- (4) $I^- > C_2H_5O^- > F^- > C_6H_5O^-$

Scan or tap for the full solution



Q.4 The correct order of the rate of the reaction for the following reaction with respect to nucleophiles is :
 $CH_3Br + Nu^- \longrightarrow CH_3Nu + Br^-$

[JEE Main 2026 (Online) 21st January Evening Shift]

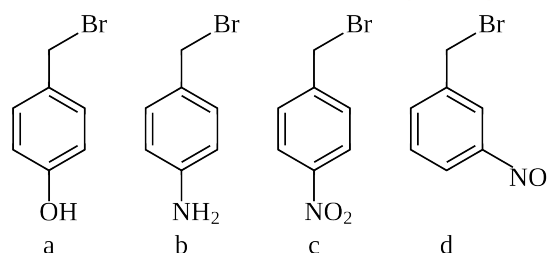
- (1) $ClO_4^- > CH_3COO^- > OH^- > PhO^-$
- (2) $OH^- > PhO^- > CH_3COO^- > ClO_4^-$
- (3) $CH_3COO^- > PhO^- > OH^- > ClO_4^-$
- (4) $PhO^- > OH^- > CH_3COO^- > ClO_4^-$

Scan or tap for the full solution



Q.5 The correct order of reactivity of the following benzyl halides towards reaction with KCN is :

[JEE Main 2026 (Online) 21st January Evening Shift]



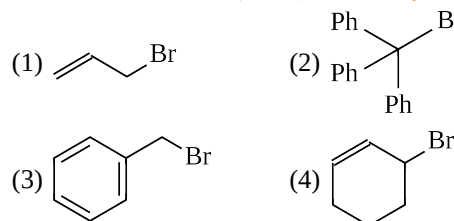
- (1) $a > b > c > d$
- (2) $b > a > d > c$
- (3) $b > a > c > d$
- (4) $a > b > d > c$

Scan or tap for the full solution



Q.6 Which among the following halides will generate the most stable carbocation in the nucleophilic substitution reaction?

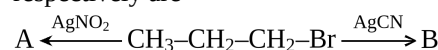
[JEE Main 2025 (Online) 29th January Evening Shift]



Scan or tap for the full solution



Q.7 The products A and B in the following reactions, respectively are



[JEE Main 2025 (Online) 28th January Morning Shift]

- (1) $\text{CH}_3\text{--CH}_2\text{--CH}_2\text{--ONO}$, $\text{CH}_3\text{--CH}_2\text{--CH}_2\text{--CN}$
 (2) $\text{CH}_3\text{--CH}_2\text{--CH}_2\text{--NO}_2$, $\text{CH}_3\text{--CH}_2\text{--CH}_2\text{--CN}$
 (3) $\text{CH}_3\text{--CH}_2\text{--CH}_2\text{--ONO}$, $\text{CH}_3\text{--CH}_2\text{--CH}_2\text{--NC}$
 (4) $\text{CH}_3\text{--CH}_2\text{--CH}_2\text{--NO}_2$, $\text{CH}_3\text{--CH}_2\text{--CH}_2\text{--NC}$

Scan or tap for the full solution



Q.8 Given below are two statements :

Statement-I: $\text{Et}_2\text{N--CH}_2\text{CH}_2\text{CH}_2\text{Cl}$ will undergo alkaline hydrolysis at a faster rate than $\text{Et}_2\text{CH--CH}_2\text{CH}_2\text{CH}_2\text{Cl}$

Statement-II: In $\text{Et}_2\text{N--CH}_2\text{CH}_2\text{CH}_2\text{Cl}$, intramolecular substitution takes place first by involving lone pair of electrons on nitrogen.

In the light of the above statements, choose the most appropriate answer from the options given below

[JEE Main 2025 (Online) 28th January Morning Shift]

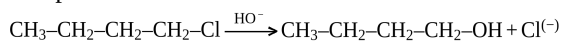
- (1) Both Statement-I and Statement-II are correct
 (2) Statement-I is incorrect but Statement-II is correct
 (3) Both Statement-I and Statement-II are incorrect
 (4) Statement-I is correct but Statement-II is incorrect

Scan or tap for the full solution

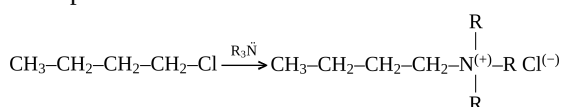


Q.9 Given below are two statements:

Statement-I: The conversion proceeds well in the less polar medium.



Statement-II: The conversion proceeds well in the more polar medium.



In the light of the above statements, choose the correct answer from the options given below

[JEE Main 2025 (Online) 24th January Morning Shift]

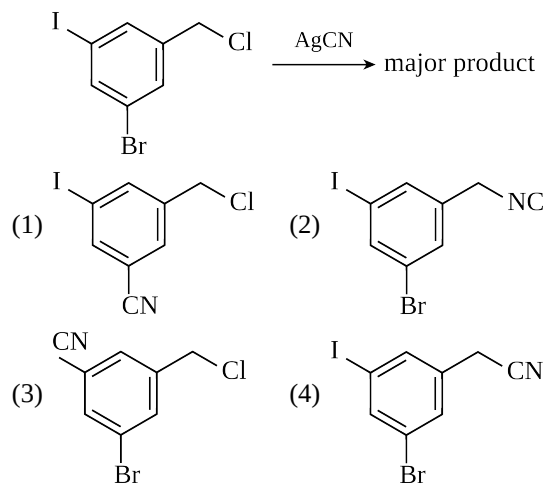
- (1) Statement-I is false but Statement-II is true
 (2) Statement-I is true but Statement-II is false
 (3) Both Statement-I and Statement-II are false
 (4) Both Statement-I and Statement-II are true

Scan or tap for the full solution



Q.10 The structure of the major product formed in the following reaction is :

[JEE Main 2025 (Online) 24th January Evening Shift]

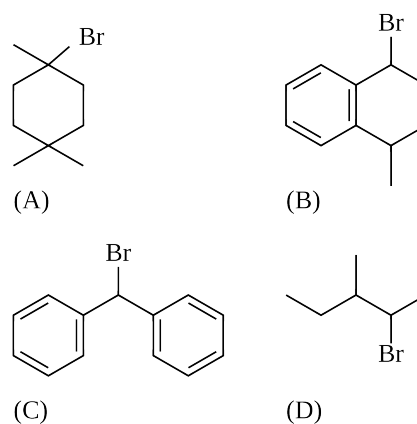


Scan or tap for the full solution



Q.11 The ascending order of relative rate of solvolysis of following compounds is :

[JEE Main 2025 (Online) 23rd January Evening Shift]



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

Scan or tap for the full solution



Q.12 Given below are two statements :

Statement-I: $\text{CH}_3\text{--O--CH}_2\text{--Cl}$ will undergo $\text{S}_\text{N}1$ reaction though it is a primary halide.

Statement-II: $\text{CH}_3\text{--C(CH}_3)_2\text{--CH}_2\text{--Cl}$ will not

undergo $\text{S}_\text{N}2$ reaction very easily though it is a primary halide.

In the light of the above statements, choose the most appropriate answer from the options given below :

[JEE Main 2025 (Online) 22nd January Morning Shift]

- (1) Both Statement-I and Statement-II are incorrect
- (2) Both Statement-I and Statement-II are correct
- (3) Statement-I is correct but Statement-II is incorrect
- (4) Statement-I is incorrect but Statement-II is correct

Scan or tap for the
full solution



ANSWER KEY

Ques.	1	2	3	4	5	6	7	8	9	10	11
Ans.	1	2	1	2	2	2	4	1	4	2	2
Ques.	12										
Ans.	2										