

JEE Mains 2026 22 Jan Shift 1 Question Paper(Memory Based)

1. Which of the following is the correct order of bond length?

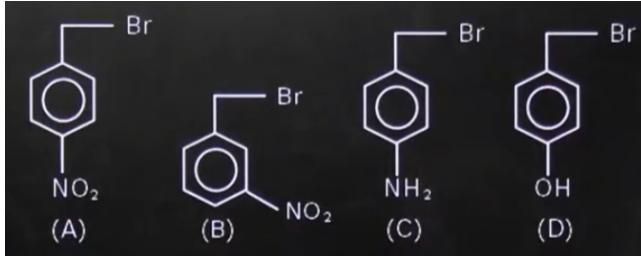
- (A) C–H < C≡N < C=O < C–O
- (B) C≡N < C–H < C–O < C=O
- (C) C–H < C≡N < C=O < C–O
- (D) C–O < C≡N < C=O < C–H

2. Which of the following is the correct order of nucleophilic nature for the following reaction?



- (1) $\text{HO}^- > \text{PhO}^- > \text{CH}_3\text{COO}^- > \text{ClO}_4^-$
- (2) $\text{PhO}^- > \text{HO}^- > \text{CH}_3\text{COO}^- > \text{ClO}_4^-$
- (3) $\text{CH}_3\text{COO}^- > \text{HO}^- > \text{PhO}^- > \text{ClO}_4^-$
- (4) $\text{HO}^- > \text{ClO}_4^- > \text{PhO}^- > \text{CH}_3\text{COO}^-$

3. The following compounds undergo $\text{S}_{\text{N}}2$ reaction. What is the correct order of $\text{S}_{\text{N}}2$ reactivity?



- (1) $D > C > B > A$
- (2) $A > B > D > C$
- (3) $A > B > C > D$
- (4) $D > A > C > B$

4. Let $A = \begin{bmatrix} 3 & -4 \\ 1 & -1 \end{bmatrix}$ and $B = \begin{bmatrix} 29 & 49 \\ 1 & 2 \end{bmatrix}$. If $(A^5 + B) \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 0 \\ 0 \end{bmatrix}$, then find (x, y) .

5. Let one end of focal chord of the parabola $y^2 = 16x$ be $(16, 16)$. If $P(\alpha, \beta)$ divides this focal chord internally in the ratio $5 : 2$, then the minimum value of $\alpha + \beta$ is equal to

- (A) 7
- (B) 22
- (C) 5
- (D) 16

6.

$$\left(\frac{1}{^{15}C_0} + \frac{1}{^{15}C_1} \right) \left(\frac{1}{^{15}C_1} + \frac{1}{^{15}C_2} \right) \cdots \left(\frac{1}{^{15}C_{12}} + \frac{1}{^{15}C_{13}} \right) = \frac{\alpha^{13}}{^{14}C_0 \cdot ^{14}C_1 \cdot ^{14}C_2 \cdots ^{14}C_{12}}$$

If so, then find the value of 30α .
