

JEE EXPERT

PRACTICE TEST – 7 (04 APRIL 2020)

ANSWER KEY & SOLUTION

SECTION – I (Chemistry)

Part – A

- | | | | |
|-------|--------|--------|----------|
| 1. D | 2. A | 3. A | 4. D |
| 5. A | 6. C | 7. D | 8. C |
| 9. CD | 10. CD | 11. AC | 12. ABCD |

Part – B

- | | | | |
|-----------------------|-------------------|-------------------|-------------------|
| 1. $A \rightarrow QT$ | $B \rightarrow R$ | $C \rightarrow S$ | $D \rightarrow P$ |
| 2. $A \rightarrow T$ | $B \rightarrow S$ | $C \rightarrow P$ | $D \rightarrow R$ |

Part – C

- | | | | |
|------|------|------|------|
| 1. 9 | 2. 1 | 3. 8 | 4. 6 |
| 5. 8 | 6. 2 | | |

SECTION – II (Physics)

Part – A

- | | | | |
|-------|--------|---------|--------|
| 1. A | 2. B | 3. C | 4. B |
| 5. C | 6. B | 7. A | 8. C |
| 9. CD | 10. AD | 11. ACD | 12. AC |

Part – B

- | | | | |
|------------------------|--------------------|-------------------|-------------------|
| 1. $A \rightarrow Q$ | $B \rightarrow S$ | $C \rightarrow R$ | $D \rightarrow P$ |
| 2. $A \rightarrow PRS$ | $B \rightarrow PQ$ | $C \rightarrow S$ | $D \rightarrow P$ |

Part – C

- | | | | |
|------|------|------|------|
| 1. 5 | 2. 2 | 3. 1 | 4. 2 |
| 5. 5 | 6. 2 | | |

SECTION – III (Mathematics)

Part – A

- | | | | |
|--------|-----------|-----------|---------|
| 1. B | 2. A | 3. A | 4. D |
| 5. A | 6. D | 7. C | 8. C |
| 9. B,C | 10. A,B,D | 11. A,C,D | 12. B,C |

Part – B

- | | | | |
|----------------------|-------------------|-------------------|-------------------|
| 1. $A \rightarrow R$ | $B \rightarrow S$ | $C \rightarrow Q$ | $D \rightarrow P$ |
| 2. $A \rightarrow S$ | $B \rightarrow R$ | $C \rightarrow P$ | $D \rightarrow Q$ |

Part – C

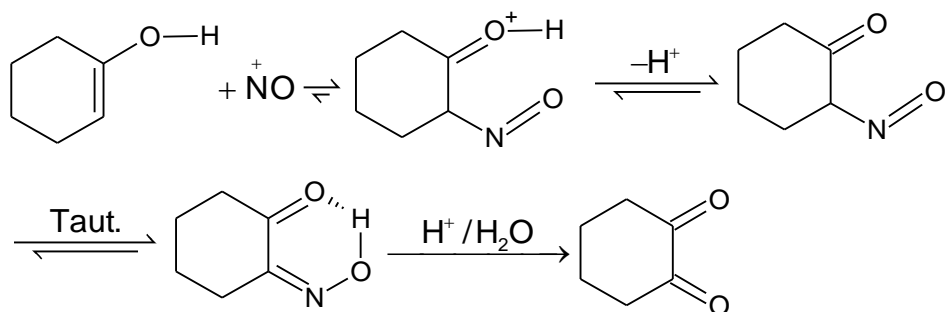
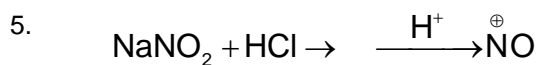
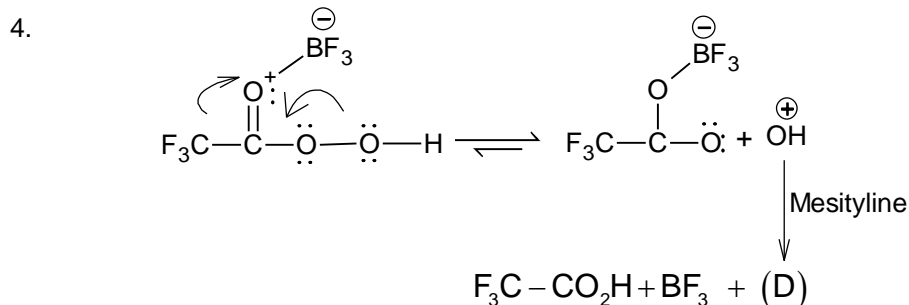
- | | | | |
|------|------|------|------|
| 1. 6 | 2. 8 | 3. 1 | 4. 3 |
| 5. 2 | 6. 2 | | |

HINTS & SOLUTIONS

SECTION – I (Chemistry)

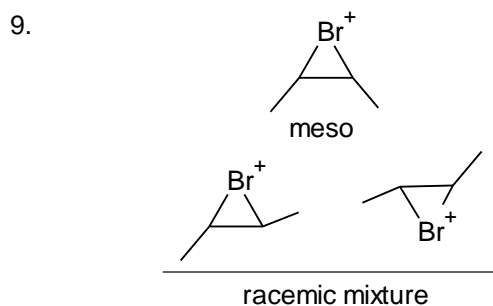
Part – A

1. In S_N2 , nucleophile attack from rear position of the leaving group.
3. Acid-catalysed aldol condensation + aldol condensation + acetal formation

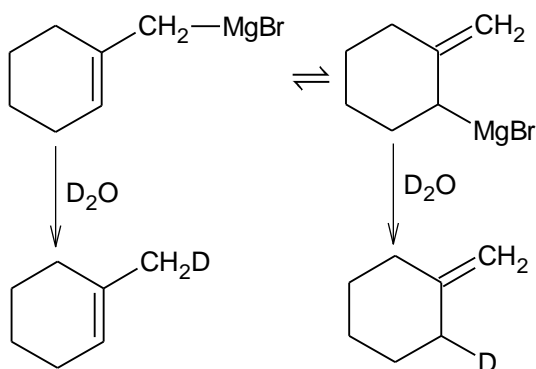


6. A case of Hofmann bromamide reaction. Intramolecular attack (always more favourable) on isocyanate intermediate leads to result.

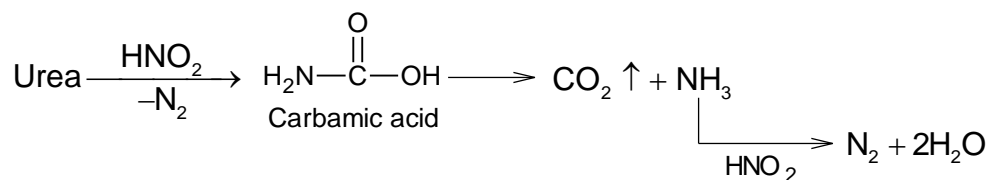
7. Retro-Dieckmann/then Dieckmann



10. The initially formed Grignard reagent undergoes a rapid allylic rearrangement, each Grignard reagent in equilibrium can react with D_2O .

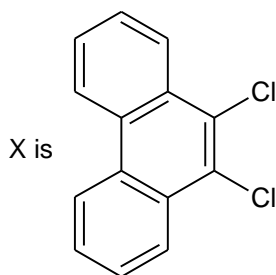


11.



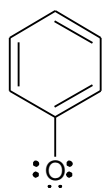
Part – C

1.



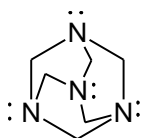
2. Trans-2-butene is converted into Cis-2-butene.

3.

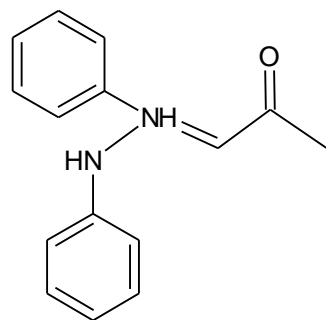


The 6π electrons of benzene ring and 2π electron of phenoxide oxygen

4.



6. Conjugate substitution. The compound [X] is



SECTION – I (Physics)**Part – A**

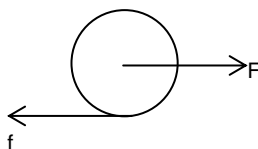
1. $S = 0 + \frac{1}{2}at^2 = \frac{1 \text{ eV}}{2 \text{ md}} t^2$
3. $W = \int \vec{F}_{\text{ext}} \cdot d\vec{r} = \frac{-\lambda q_0}{2\pi\epsilon_0} \int_{3a}^{2a} \frac{dr}{r}$
5. $q_{\text{in}} = \lambda [2\sqrt{R^2 - y^2}]$
6. $B = 2 \left[\frac{\mu_0 I}{4\pi r \cos 45^\circ} \right] (\sin 90^\circ - \sin 45^\circ) + \frac{\mu_0 I}{4\pi r} \left(\frac{\pi}{2} \right)$
7. $W = \Delta U = B I \Delta A$
8. $\text{Heat generated} = \frac{2r_0}{3r_0} \left[\frac{1}{2} C_0 E_0^2 \right]$
9. $\tau = MB \sin 90^\circ = I\alpha$
10. $R_1 = \frac{100^2}{25} = 400\Omega, R_2 = \frac{200^2}{100} = 400\Omega$
 $R_{\text{eq}} = 500\Omega$

Part – B

1. (D) $E = \frac{kq}{r^2}$
2. $A \rightarrow \theta = 0^\circ, 90^\circ$ and $0^\circ < \theta < 90^\circ$
 $C \rightarrow$ Changed particle will also gain velocity in the direction of electric field.

Part – C

1. If $R = \infty \Rightarrow I = 0 \Rightarrow V = E$
when $R = 0, I = \frac{E}{r}$
 $2 = \frac{10}{r} \Rightarrow r = 5\Omega$
3. $\frac{1}{2}mv^2 = kq_1q_2 \left[\frac{1}{0.2} - \frac{1}{0.5} \right]$
4. at $t = 0$, capacitor will not offer any resistance
5. $mg = qVB$
6. $F = IBL$



$$F - f = ma$$

$$fr = I\alpha$$

$$a = r\alpha$$