



JEE (MAIN) 2025

MEMORY BASED QUESTIONS & TEXT SOLUTION

SHIFT-1

DATE & DAY: 22nd January 2025 & Wednesday

PAPER-1

Duration: 3 Hrs.

Time: 09:00 – 12:00 IST

SUBJECT: CHEMISTRY

Selections in JEE (Advanced)/
IIT-JEE Since 2002

52395

Selections in JEE (Main)/
AIEEE Since 2009

257576

Selections in NEET (UG)/
AIPMT/AIIMS Since 2012

22494

Admission Open for 2025-26

Target: JEE (Advanced) | JEE (Main) | NEET (UG) | PCCP (Class V to X)

100% Scholarship on the basis of Class 10th & 12th
& JEE (Main) 2025 %ile/ AIR

 **REGISTERED & CORPORATE OFFICE (CIN: U80302RJ2007PLC024029):**

CG Tower, A-46 & 52, IPIA, Near City Mall, Jhalawar Road, Kota (Rajasthan) - 324005

☎ 0744-2777777 | 📞 73400 10345 | ✉ contact@resonance.ac.in | 🌐 www.resonance.ac.in | Follow Us:  @ResonanceEdu | 📷 @Resonance_Edu

This solutions was download from Resonance JEE (Main) 2025 Solution Portal

PART : CHEMISTRY

1. Compare boiling point of given solutions :

(I) 10^{-4} M NaCl

(II) 10^{-3} M NaCl

(III) 10^{-2} M NaCl

(IV) 10^{-4} M Urea

- (1) I > II > III > IV (2) III > II > I > IV (3) II > I > III > IV (4) III > I > II > IV
- Ans. (2)**
- Sol.** $\Delta T_b = iK_b m$
For dil. aq. solutions, $m \approx M$
 $\therefore \Delta T_b \propto iM$
2. The ground state radius of hydrogen atom is a_0 . Calculate the radius of first excited state of He^+ ?
(1) $2a_0$ (2) $4a_0$ (3) a_0 (4) $a_0/2$
- Ans. (1)**
- Sol.** $a_n = \frac{a_0 n^2}{Z}$ $\text{He}^+ = Z = 2$
 $a_n = \frac{a_0 (2)^2}{2}$ for first excited state $n = 2$
 $a_n = 2a_0$
3. Which of the following lanthanide ions has $7e^-$ in outermost shell?
(1) Tb^{+2} (2) Gd^{+3} (3) Eu^{+2} (4) Sm^{+3}
- Ans. (2)**
- Sol.** $\text{Gd} : 4f^7 5d^1 6s^2$
 $\text{Gd}^{+3} = [\text{Xe}] 4f^7$

Atomic Number	Name	Symbol	Electronic configurations*		
			Ln	Ln ²⁺	Ln ³⁺
57	Lanthanum	La	$5d^1 6s^2$	$5d^1$	$4f^0$
58	Cerium	Ce	$4f^1 5d^1 6s^2$	$4f^2$	$4f^1$
59	Praseodymium	Pr	$4f^3 6s^2$	$4f^3$	$4f^2$
60	Neodymium	Nd	$4f^4 6s^2$	$4f^4$	$4f^3$
61	Promethium	Pm	$4f^5 6s^2$	$4f^5$	$4f^4$
62	Samarium	Sm	$4f^6 6s^2$	$4f^6$	$4f^5$
63	Europium	Eu	$4f^7 6s^2$	$4f^7$	$4f^6$
64	Gadolinium	Gd	$4f^7 5d^1 6s^2$	$4f^7 5d^1$	$4f^7$
65	Terbium	Tb	$4f^9 6s^2$	$4f^9$	$4f^8$
66	Dysprosium	Dy	$4f^{10} 6s^2$	$4f^{10}$	$4f^9$
67	Holmium	Ho	$4f^{11} 6s^2$	$4f^{11}$	$4f^{10}$
68	Erbium	Er	$4f^{12} 6s^2$	$4f^{12}$	$4f^{11}$
69	Thulium	Tm	$4f^{13} 6s^2$	$4f^{13}$	$4f^{12}$
70	Ytterbium	Yb	$4f^{14} 6s^2$	$4f^{14}$	$4f^{13}$
71	Lutetium	Lu	$4f^{14} 5d^1 6s^2$	$4f^{14} 5d^1$	$4f^{14}$

4. Electrolysis of which compound gives $\text{H}_2\text{S}_2\text{O}_8$?
(1) Electrolysis of conc. Na_2SO_4 (2) Electrolysis of dil. Na_2SO_4
(3) Electrolysis of conc. H_2SO_4 (4) Electrolysis of dil. H_2SO_4
- Ans. (3)**
- Sol.** Cathode : $2\text{H}^+ + 2e^- \longrightarrow \text{H}_2$
Anode : $2\text{HSO}_4^- \longrightarrow \text{H}_2\text{S}_2\text{O}_8 + 2e^-$

Resonance Eduventures Ltd.

Reg. Office & Corp. Office : CG Tower, A-46 & 52, IPIA, Near City Mall, Jhalawar Road, Kota (Raj.) - 324005

Ph. No.: +91-744-2777777, 2777700 | FAX No.: +91-022-39167222

To Know more : sms RESO at 56677 | Website : www.resonance.ac.in | E-mail : contact@resonance.ac.in | CIN : U80302RJ2007PLC024029

Toll Free : 1800 258 5555 | 7340010333 | facebook.com/ResonanceEdu | twitter.com/ResonanceEdu | www.youtube.com/resonance | blog.resonance.ac.in

This solution was download from Resonance JEE(Main) 2025 Solution portal

PAGE #1

Resonance
Educating for better tomorrow | JEE(Main) 2025 | DATE : 22-01-2025 (SHIFT-1) | PAPER-1 | MEMORY BASED | CHEMISTRY

5. Incorrect order of electronegativity is :
(1) $\text{Al} < \text{Mg} < \text{B} < \text{N}$ (2) $\text{Mg} < \text{Al} < \text{B} < \text{N}$ (3) $\text{C} > \text{Si}$ (4) $\text{N} < \text{O} < \text{F}$
- Ans. (1)**
- Sol.** Order is : $\text{Mg} < \text{Al} < \text{B} < \text{N}$
6. Incorrect statement regarding first order kinetics :
(1) Half life = $\frac{\ln 2}{k}$
(2) k is temperature independent
(3) Conc. of reactant after 3 half lives is $\frac{1}{8}$ of initial value.
(4) As T increases, k increases.
- Ans. (2)**
- Sol.** k is temperature dependent. ($k = Ae^{-\frac{E_a}{RT}}$)
7. For $[\text{NiCl}_4]^{2-}$ & $[\text{Ni}(\text{CO})_4]$:

- (1) $[\text{NiCl}_4]^{2-}$: Ni^{2+} ; Tetrahedral, $[\text{Ni}(\text{CO})_4]$: Ni; Tetrahedral
 (2) $[\text{NiCl}_4]^{2-}$: Ni^{4+} ; Tetrahedral, $[\text{Ni}(\text{CO})_4]$: Ni; Square planar
 (3) $[\text{NiCl}_4]^{2-}$: Ni^{2+} ; Tetrahedral, $[\text{Ni}(\text{CO})_4]$: Ni^{2+} ; Tetrahedral
 (4) $[\text{NiCl}_4]^{2-}$: Ni^{4+} ; Square planar, $[\text{Ni}(\text{CO})_4]$: Ni^{2+} ; Square planar

Ans. (1)

Sol. $[\text{NiCl}_4]^{2-}$: Ni^{2+} ($3d^8$) + WFL with CN = 4
 $\Rightarrow sp^3$; Tetrahedral; Paramagnetic ($n = 2$)
 $[\text{Ni}(\text{CO})_4]$: Ni ($3d^{10}$) + SFL with CN = 4
 $\Rightarrow sp^3$; Tetrahedral; Diamagnetic ($n = 0$)

8. Number of linear ions/molecules :

I_3^- , NO_2 , O_3 , OF_2 , NO_2^+ , BeCl_2 , N_3^- , SO_2 , CO_2 , XeF_2

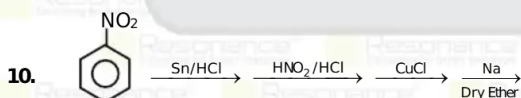
Ans. (6)

Sol. Linear species are I_3^- , NO_2^+ , BeCl_2 , CO_2 , XeF_2 & N_3^-

9. Given weight of the organic compound is 180 mg and the weight of the AgCl precipitated is 143.5 mg. Calculate the estimation of Cl in%
 Atomic weight of Cl = 35.5 u
 Atomic weight of Ag = 108 u

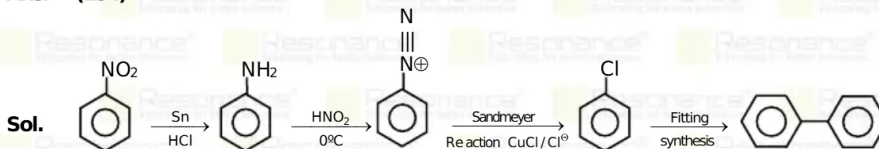
Ans. (20)

Sol. $\% \text{Cl} = \frac{35.5}{180} \times 100 \approx 20\%$



Final product is

Ans. (154)



Resonance Eduventures Ltd.

Reg. Office & Corp. Office : CG Tower, A-46 & 52, IPIA, Near City Mall, Jhalawar Road, Kota (Raj.) - 324005

Ph. No.: +91-744-2777777, 2777700 | FAX No.: +91-022-39167222

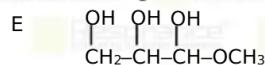
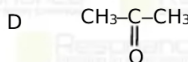
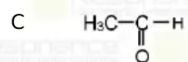
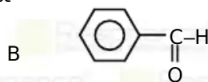
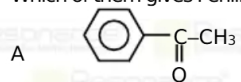
To Know more : sms RESO at 56677 | Website : www.resonance.ac.in | E-mail : contact@resonance.ac.in | CIN : U80302RJ2007PLC024029

Toll Free : 1800 258 5555 | 7340010333 | facebook.com/ResonanceEdu | twitter.com/ResonanceEdu | www.youtube.com/resowatch | blog.resonance.ac.in

This solution was download from Resonance JEE(Main) 2025 Solution portal

PAGE #2

11. Which of them gives Fehling reagent test



(1) C, E

(2) A, B, C

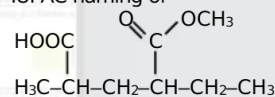
(3) B, C, E

(4) A, B, D

Ans. (3)

Sol. Fehling test is given by Aldehyde and hemiacetals. But aromatic Aldehyde does not give Fehling test.

12. IUPAC naming of



(1) 3-methoxycarbonyl-5-methyl hexanoic acid

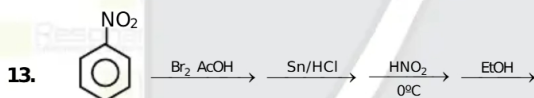
(2) 4-methoxycarbonyl-2-methyl hexanoic acid

(3) 4-methoxycarboxylate-2-methyl hexanoic acid

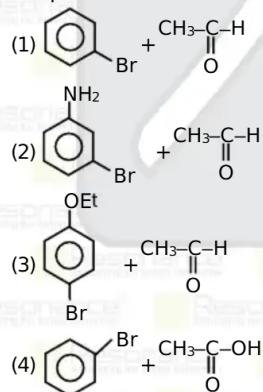
(4) 2-carboxy-4-methoxy carbonyl pentane

Ans. (2)

Sol. 4-methoxycarbonyl-2-methyl hexanoic acid



end products of reactions are



Ans. (1)

Resonance Eduventures Ltd.

Reg. Office & Corp. Office : CG Tower, A-46 & 52, IPIA, Near City Mall, Jhalawar Road, Kota (Raj.) - 324005

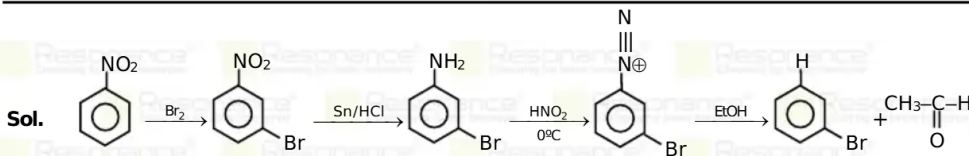
Ph. No.: +91-744-2777777, 2777700 | FAX No.: +91-022-39167222

To Know more : sms RESO at 56677 | Website : www.resonance.ac.in | E-mail : contact@resonance.ac.in | CIN : U80302RJ2007PLC024029

Toll Free : 1800 258 5555 | 7340010333 | facebook.com/ResonanceEdu | twitter.com/ResonanceEdu | www.youtube.com/resonance | blog.resonance.ac.in

This solution was download from Resonance JEE(Main) 2025 Solution portal

PAGE #3

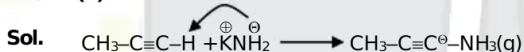


14. **Statement-I** : 1 mole propyne reacts with KNH_2 to give $\frac{1}{2}$ mole H_2 gas.

Statement-II : 4 g $\text{CH}_3\text{C}\equiv\text{CH}$ reacts with NaNH_2 gives 224 ml NH_3 gas

- (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

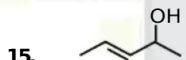
Ans. (2)



SI is incorrect as NH_3 is released and not H_2

$$\frac{4g}{40g} = 0.1 \text{ mol } \text{CH}_3\text{C}\equiv\text{CH} \text{ is present}$$

So $22400 \text{ ml} \times 0.1 = 2240 \text{ ml}$ gas is released.



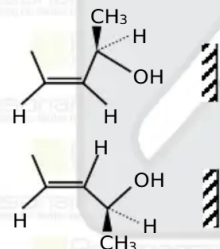
Total stereoisomers
 (1) 2 (2) 3

(3) 4

(4) 6

Ans. (3)

Sol. Two stereocentre hence
 $2^2 = 4$ stereoisomer



16. **Statement-I :** $\text{CH}_3\text{O}-\text{CH}_2-\text{Cl}$ is primary halide but gives $\text{S}_{\text{N}}1$ reaction.

Statement-II : $\text{CH}_3-\overset{\text{CH}_3}{\underset{\text{CH}_3}{\text{C}}}-\text{CH}_2-\text{Cl}$ is also primary halide but does not give $\text{S}_{\text{N}}2$ reaction.

- (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

Ans. (2)

Sol. Both statement I and statement II are false

Resonance Eduventures Ltd.

Reg. Office & Corp. Office : CG Tower, A-46 & 52, IPIA, Near City Mall, Jhalawar Road, Kota (Raj.) - 324005

Ph. No.: +91-744-2777777, 2777700 | FAX No. : +91-022-39167222

To Know more : sms RESO at 56677 | Website : www.resonance.ac.in | E-mail : contact@resonance.ac.in | CIN : U80302RJ2007PLC024029

Toll Free : 1800 258 5555 | 7340010333 | [facebook.com/ResonanceEdu](https://www.facebook.com/ResonanceEdu) | twitter.com/ResonanceEdu | www.youtube.com/resowatch | blog.resonance.ac.in

This solution was download from Resonance JEE(Main) 2025 Solution portal

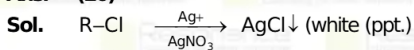
PAGE #4



| JEE(Main) 2025 | DATE : 22-01-2025 (SHIFT-1) | PAPER-1 | MEMORY BASED | CHEMISTRY

17. In carius tube method, 180 mg sample gives 143.5 mg AgCl . Give % of halide in the sample.

Ans. (20)



$$\begin{array}{ccc} 1 \text{ mol} & & 1 \text{ mol} \\ & & \frac{143}{143} \times 10^{-3} \text{ mol} \end{array}$$

$$\text{gram of Cl} = \frac{143 \times 10^{-3} \times 35.5}{143}$$

$$\% \text{ Cl} = \frac{\text{gram of Cl}}{\text{wt total sample}} \times 100$$

$$\% \text{ Cl} = \frac{143 \times 10^{-3} \times 35.5}{143 \times 180 \times 10^{-3}} \times 100 = \frac{355}{18} = 19.72$$

$$\% \text{ Cl} \approx 20\%$$

Resonance Eduventures Ltd.

Reg. Office & Corp. Office : CG Tower, A-46 & 52, IPIA, Near City Mall, Jhalawar Road, Kota (Raj.) - 324005

Ph. No.: +91-744-2777777, 2777700 | FAX No.: +91-022-39167222

To Know more : sms RESO at 56677 | Website : www.resonance.ac.in | E-mail : contact@resonance.ac.in | CIN : U80302RJ2007PLC024029

Toll Free : 1800 258 5555 | 7340010333 | [facebook.com/ResonanceEdu](https://www.facebook.com/ResonanceEdu) | twitter.com/ResonanceEdu | www.youtube.com/resoswatch | blog.resonance.ac.in

This solution was download from Resonance JEE(Main) 2025 Solution portal

PAGE #5



TO KNOW MORE

Call: 0744-2777777,
2777700

TARGET: JEE (Adv.) 2024



AIR
31

JEE (Adv.) 2024

ISHAAN GUPTA

SCHOLARSHIP UPTO **100%**

on the basis of Class 10th & 12th &
JEE (Main) 2025 %ile/ AIR

VISHESH COURSE

For 12th Passed Students

Course Features*

- ▶ Course Duration: **42 Weeks**
- ▶ Total No. of Lectures: **630** (P:210 | C: 210 | M: 210)
- ▶ Duration of One Lecture: **1.5 Hrs.** (90 Minutes)
- ▶ Classroom Teaching Hours.: **945 Hrs.**
- ▶ Testing Duration: **51 Hrs.**
- ▶ Total Academic Hours.: **996 Hrs.**

*Tentative



CLASS STARTS
7th April 2025

TARGET: JEE (Main) 2026

ABHYAAS COURSE

For 12th Passed Students

Course Features*

- ▶ Course Duration: **39 Weeks**
- ▶ Total No. of Lectures: **577** (P: 192 | C: 193 | M: 192)
- ▶ Duration of One Lecture: **1.5 Hrs.** (90 Minutes)
- ▶ Classroom Teaching Hours.: **865 Hrs.**
- ▶ Testing Duration: **36 Hrs.**
- ▶ Total Academic Hours.: **901 Hrs.**

*Tentative

AIR
102

JEE (MAIN) 2024

RITAM BANERJEE



SCHOLARSHIP UPTO **100%**

on the basis of Class 10th & 12th &
JEE (Main) 2025 %ile/ AIR



CLASS STARTS
7th April 2025

