



Resonance®
Educating for better tomorrow

JEE (MAIN) 2025

MEMORY BASED QUESTIONS & TEXT SOLUTION

SHIFT-2

DATE & DAY: 02nd April 2025 & Wednesday

PAPER-1

Duration: 3 Hrs.

Time: 03:00 PM – 06:00 PM

SUBJECT: CHEMISTRY

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

52395

Selections in JEE (Main)/
AIEEE Since 2009

257576

Selections in NEET (UG)/
AIPT/AIMS 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

☎ 0144-2377777 | 📞 73480 10348 | ✉ contact@resonance.ac.in | 🌐 www.resonance.ac.in | Follow Us: 📺 📺 📺 📺 @ResonanceEds | 📷 @Resonance_Edu

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

PART : CHEMISTRY

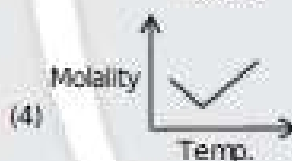
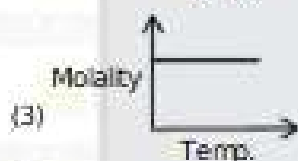
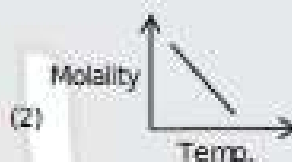
1. Nature of compounds
 TeO_2 and TeH_2 is and respectively

- (1) oxidising & reducing (2) Highly acidic & basic
 (3) Reducing & Basic (4) Basic & oxidising

Ans. (1)

Sol. $\rightarrow \text{TeO}_2$ acts as an oxidising agent as it can be reduced to lower more stable oxidation state
 $\rightarrow \text{TeH}_2$ or (H_2Te) is a reducing agent due to more bond length & less bond energy.

2. X gram of NaOH is mixed with 10 mL of water, if temperature is increased from 5°C to 25°C then select correct graph :



Ans. (2)

Sol. On increasing temperature molarity decreases as volume increases.

3. Given elements with electronic configuration.

I : $1s^2, 2s^2p^1$

II : $1s^2, 2s^2$

III : $1s^2, 2s^2p^1$

IV : $1s^2, 2s^2p^1$

order of their electronegativity on Pauling scale is:

- (1) IV > III > I > II (2) III > IV > I > II (3) I > II > III > IV (4) II > I > IV > III

Ans. (1)

Sol. $\text{N} > \text{C} > \text{B} > \text{Be}$
 3.0 2.5 2 1.5

4. The electronic configuration of the complex which has maximum CFSE among the following is:
 $[\text{Co}(\text{en})_3]^{3+}$, $[\text{CoF}_6]^{3-}$, $[\text{Fe}(\text{H}_2\text{O})_6]^{2+}$, $[\text{FeF}_6]^{3-}$

- (1) $t_{2g}^{2,2,2}, e_g^{0,0}$ (2) $t_{2g}^{2,1,1}, e_g^{1,1}$ (3) $t_{2g}^{1,1,1}, e_g^{1,1}$ (4) $t_{2g}^{2,2,1}, e_g^{0,0}$

Ans. (1)

Sol. Co^{3+} (d^6) with strong field ligand has CFSE = $2.4\Delta_0 + 2P$ & electronic configuration $t_{2g}^{2,2,2}, e_g^{0,0}$.

5. Purple colour of $\text{Na}_2[\text{Fe}(\text{CN})_5(\text{NOS})]\text{aq.}$ is obtained in the confirmatory test of following :

- (1) SO_3^{2-} (2) SO_4^{2-}
 (3) S^{2-} (4) HSO_3^-

Ans. (3)

Sol. $\text{Na}_2\text{S}_{2}\text{O}_8 + \text{Na}_2[\text{Fe}(\text{CN})_5(\text{NO})]\text{aq.}$

$\downarrow$
 $\text{Na}_2[\text{Fe}(\text{CN})_5(\text{NOS})]\text{aq.}$
 Violet or purple

Resonance Eduventures Ltd.

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

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

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

Toll Free : 1800 258 5555 | 7340010333 | Facebook : @resonanceedu | Twitter : @resonanceedu | YouTube : @resonanceedu | Instagram : @resonanceedu

6. Among the following select specie having sp^3d hybridisation, lone pair and two types of bond length.
 (1) PCl_5 (2) SF_4 (3) XeF_2 (4) XeF_4

Ans. (2)



sp^3d (4BP + 1LP) & axial bond length will be greater than equatorial bond length.

7. 1 gram of AB on dissolving in 15gram of H_2O give elevation in boiling point $0.45^\circ C$ while 1 gram of AB_2 on dissolving in 15 gram of H_2O give elevation in boiling point $27^\circ C$, then molar mass of A is gram.

[Given $K_b(H_2O) = 0.5 \frac{K \cdot kg}{mole}$]

Ans. (518)

Sol. $\Delta T_b = i K_b(m)$

$$\text{For } AB \Rightarrow \Delta T_b = 2 \times 0.5 \left[\frac{1}{M_A + M_B} \right] 0 \times \frac{1000}{15} = 0.15$$

$$= \frac{1000}{(M_A + M_B)} \Rightarrow (15 \times 0.15)$$

$$M_A + M_B = 444.44 \dots (1)$$

$$\text{For } AB_2 \Rightarrow \Delta T_b = 3 \times 0.5 \left[\frac{1}{M_A + 2M_B} \right] \times \frac{1000}{15} = 0.27$$

$$M_A + 2M_B = 370.37 \dots (2)$$

$$2M_A + 2M_B = 888.88$$

$$M_A + 2M_B = 370.37$$

$$\text{So } M_A = 518 \text{ gram/mol}$$

8. Determine hybridization and number of unpaired electrons in complex $K_2[MnCl_4]$

- (1) d^2sp^3 , 4 (2) sp^3d^2 , 3 (3) d^2sp^3 , 5 (4) sp^3d^2 , 4

Ans. (1)

Sol. $\rightarrow [Mn^{2+}][Ar]3d^5$

$\rightarrow$ In presence of wfl (Cl^-) no rearrangement

$\rightarrow n=4$ & sp^3d^2

9. For equilibrium reaction



Total pressure at equilibrium is p and degree of dissociation is α , then on increase in pressure.

- (1) α increase (2) α decrease (3) No. change (4) Can not predict

Ans. (2)

Sol. $A \rightleftharpoons B + C$

$$K_p = \frac{\alpha^2 p}{1 - \alpha^2}$$

on increase in pressure, α decreases.

10. 0.5 g organic compound is heated with CuO in a CO_2 atmosphere at 300 K. The volume of N_2 gas collected over H_2O is 60 mL. If the aqueous tension is 15 mm Hg at 300 K and pressure recorded is 715 mmHg then calculate % of N organic compound.

Ans. (13)

Resonance Eduventures Ltd.

Reg. Office & Corp. Office : CG Tower, A-46 & 52, IPHA, 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 : U80303RJ2007PLC024029

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

Sol. $\eta_{N_2} = \frac{pV}{RT} = \frac{700 \times 60 \times 10^{-3}}{760 \times 0.0821 \times 300}$
 $\eta_{N_2} = 0.062 \text{ g}$
 $\% \text{ of N} = \frac{0.062}{0.5} \times 100 = 12.6\% \approx 13\%$

- 11.** From the given statement
 (a) ✓ describe shape of orbital



(c) In P_x sign positive and negative represent charge

(d) $2P_x$ orbital have nodal plane in xy plane

Correct statement (s) is

(1) a, b only

(2) a, b, c only

(3) b, c only

(4) a, b, c, d

Ans. (1)

Sol. (c) Sign (+) & (-) represent mathematical sign

(d) $2P_x$ orbital have nodal plane in yz plane

- 12.** Which of the following is the correct order of enthalpy of atomisation of 3d-series?

(1) $Ni > Cu > Mn > Zn$

(2) $Zn > Cu > Mn > Ni$

(3) $Cu > Mn > Ni > Zn$

(4) $Mn > Ni > Cu > Zn$

Ans. (1)

Sol. Theory based

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  twitter.com/resonance16  www.youtube.com/resonance16  www.instagram.com/resonance16