

## JEE (Main) – Chemistry Sample Question Paper

<b>Subject</b>	Chemistry
<b>Total Number of Questions</b>	25
<b>Maximum Marks</b>	100
<b>Time Allowed</b>	60 Minutes

### Marking Scheme (As per JEE Main Pattern)

Each question carries **4 (four) marks**.

**1 (one) mark** will be deducted for each incorrect answer.

No marks will be deducted for unattempted questions.

Only one option is correct for each question.

### Important Instructions

1. This Question Paper consists of **25 Multiple Choice Questions** from **Chemistry** only.
2. All questions are compulsory.
3. Rough work should be done only in the space provided in the Question Paper.
4. Calculators, mobile phones, smart watches, or any electronic devices are strictly prohibited.

Name of the Candidate (Capital Letters)	
Roll Number	
Examination Centre Name	
Candidate's Signature	Date

Invigilator's Signature

# CHEMISTRY

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1. The alkaline earth metal sulphate(s) which are readily soluble in water is/are:  
(a)  $\text{BeSO}_4$   
(b)  $\text{MgSO}_4$   
(c)  $\text{CaSO}_4$   
(d)  $\text{SrSO}_4$   
(e)  $\text{BaSO}_4$   
Choose the correct answer from the options given below:  
A) Only a and b  
B) Only a, b, c  
C) Only d and e  
D) Only a and e
2. Formation of photochemical smog involves the following reaction in which A, B, and C are respectively:  
$$\text{NO}_2 \xrightarrow{h\nu} \text{A} + \text{B}$$
$$\text{B} + \text{O}_2 \rightarrow \text{C}$$
$$\text{A} + \text{C} \rightarrow \text{NO}_2 + \text{O}_2$$
  
Choose the correct answer from the options given below:  
A) NO, O, and  $\text{O}_3$   
B)  $\text{N}_2\text{O}$  and NO  
C) N,  $\text{O}_2$ , and  $\text{O}_3$   
D) O, NO, and  $\text{NO}_3$
3. In the wet tests for identification of various cations by precipitation, which transition element cation doesn't belong to group IV in qualitative inorganic analysis?  
A)  $\text{Fe}^{3+}$   
B)  $\text{Zn}^{2+}$   
C)  $\text{Co}^{2+}$   
D)  $\text{Ni}^{2+}$
4. Number of cyclic tripeptides formed with 2 amino acids A and B is:  
A) 3  
B) 4  
C) 2  
D) 5
5. The magnetic behavior of  $\text{Li}_2\text{O}$ ,  $\text{Na}_2\text{O}_2$  and  $\text{KO}_2$ , respectively, are  
A) Paramagnetic, paramagnetic and diamagnetic  
B) Diamagnetic, diamagnetic and paramagnetic  
C) Paramagnetic, diamagnetic and paramagnetic  
D) Diamagnetic, paramagnetic and diamagnetic
6. The set of correct statements is :  
(i) Manganese exhibits +7 oxidation state in its oxide.  
(ii) Ruthenium and Osmium exhibit +8 oxidation in their oxides.  
(iii) Sc shows +4 oxidation state which is oxidizing in nature.  
(iv) Cr shows oxidising nature in +6 oxidation state.  
A) (ii) and (iii)  
B) (i), (ii) and (iv)  
C) (ii), (iii) and (iv)  
D) (i) and (iii)
7. "A" obtained by Ostwald's method involving air oxidation of  $\text{NH}_3$ , upon further air oxidation produces "B". "B" on hydration forms an oxoacid of Nitrogen along with evolution of "A". The oxoacid also produces "A" and gives positive brown ring test.  
A) NO,  $\text{NO}_2$   
B)  $\text{N}_2\text{O}_3$ ,  $\text{NO}_2$   
C)  $\text{NO}_2$ ,  $\text{N}_2\text{O}_4$   
D)  $\text{NO}_2$ ,  $\text{N}_2\text{O}_5$

8. "A" obtained by Ostwald's method involving air oxidation of  $NH_3$ , upon further air oxidation produces "B". "B" on hydration forms an oxoacid of Nitrogen along with evolution of "A". The oxoacid also produces "A" and gives positive brown ring test.

A)  $NO, NO_2$

B)  $N_2O_3, NO_2$

C)  $NO_2, N_2O_4$

D)  $NO_2, N_2O_5$

9. The pair of compounds from the following pairs having both the compounds with net non-zero dipole moment is

A) Cis-dichloroethene; trans-dichloroethene

B)  $CH_2Cl_2; CHCl_3$

C) 1,4-dichlorobenzene; 1,3,5-trichlorobenzene

D) Benzene; p-Anisidine

10. The alkaline earth metal sulphate(s) which are readily soluble in water is/are:

(a)  $BeSO_4$

(b)  $MgSO_4$

(c)  $CaSO_4$

(d)  $SrSO_4$

(e)  $BaSO_4$

Choose the correct answer from the options given below:

A) Only a and b

B) Only a, b, c

C) Only d and e

D) Only a and e

11. Suitable reaction condition for preparation of Methyl phenyl ether is

A)  $PhO^- Na^+, MeBr$

B)  $PhO^- Na^+, MeOH$

C)  $Ph-Br, MeO^- Na^+$

D) Benzene,  $MeBr$

12. The concentration of dissolved Oxygen in water for growth of fish should be more than  $X$  ppm and Biochemical Oxygen Demand in clean water should be less than  $Y$  ppm.  $X$  and  $Y$  in ppm are, respectively.

A)  $X Y$

B)  $X Y$

4 8

6 5

C)  $X Y$

D)  $X Y$

4 15

6 12

13. Which of the following salt solutions would coagulate the colloid solution formed when  $FeCl_3$  is added to  $NaOH$  solution, at the fastest rate?

A) 10 mL of  $0.1 \text{ mol dm}^{-3} Ca_3(PO_4)_2$

B) 10 mL of  $0.2 \text{ mol dm}^{-3} AlCl_3$

C) 10 mL of  $0.1 \text{ mol dm}^{-3} Na_2SO_4$

D) 10 mL of  $0.15 \text{ mol dm}^{-3} CaCl_2$

14. Match List I and List II

**List I**

A. van't Hoff factor,  $i$

B.  $k_f$

C. Solution with same  $\pi$  with same osmotic pressure

D. Azeotropes

**List II**

I. Cryoscopic constant

II. Isotonic solutions

III. Normal molar mass / Abnormal molar mass

IV. Solutions with same composition of vapour above it

Choose the correct answer from the options given below :

A) A-I, B-III, C-II, D-IV

B) A-III, B-I, C-IV, D-II

C) A-III, B-I, C-II, D-IV

D) A-III, B-II, C-I, D-IV





# JEE MAIN CHEMISTRY ANSWER KEY

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1. (A)	2. (A)	3. (A)	4. (B)	5. (B)
6. (B)	7. (A)	8. (A)	9. (B)	10. (A)
11. (A)	12. (B)	13. (B)	14. (C)	15. (B)
16. (A)	17. (A)	18. (D)	19. (B)	20. (A)
21. (A)	22. (B)	23. (B)	24. (C)	25. (B)