

## 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. Which of the following cannot be explained by crystal field theory?
- A) Magnetic properties of transition metal complexes    B) The order of spectrochemical series  
C) Colour of metal complexes    D) Stability of metal complexes
2. A. Ammonium salts produce haze in atmosphere  
B. Ozone gets produced when atmospheric oxygen reacts with chlorine radicals  
C. Polychlorinated biphenyls act as cleansing solvents  
D. 'Blue baby' syndrome occurs due to the presence of excess of sulphate ions in water  
Choose the correct answer from the options given below:
- A) B and C only    B) A and C only  
C) A and D only    D) A, B and C only
3. Given below are two statements, one is labelled as Assertion *A* and the other is labeled as Reason *R*  
Assertion *A* : The alkali metals and their salts impart characteristic colour to reducing flame  
Reason *R* : Alkali metals can be detected using flame tests  
In the light of the above statements, choose the most appropriate answer from the options given below
- A) *A* is not correct but *R* is correct    B) Both *A* and *R* are correct but *R* is NOT the correct explanation of *A*  
C) Both *A* and *R* are correct and *R* is the correct explanation of *A*    D) *A* is correct but *R* is not correct
4. Match List I with List II:
- | LIST I (Type)           | LIST II (Name)    |
|-------------------------|-------------------|
| (P) Antifertility drugs | (A) Norethindrone |
| (Q) Antihistamines      | (B) Seldane       |
| (R) Tranquilizers       | (C) Meprobamate   |
| (S) Antibiotics         | (D) Penicillin    |
- Choose the correct answer from the options given below:
- A) P → (A), Q → (B), R → (C), S → (D)    B) P → (A), Q → (C), R → (B), S → (D)  
C) P → (D), Q → (C), R → (B), S → (A)    D) P → (A), Q → (D), R → (B), S → (C)
5. Given below are two statements: one is labelled as Assertion *A* and the other is labelled as Reason *R*:  
**Assertion *A***: Acetal / Ketal is stable in basic medium  
**Reason *R***: The high leaving tendency of alkoxide ion gives the stability to acetal ketal in basic medium  
In the light of the above statements, choose the correct answer from the options given below :
- A) Both *A* and *R* are true but *R* is NOT the correct explanation of *A*    B) *A* is false but *R* is true  
C) *A* is true but *R* is false    D) Both *A* and *R* are true and *R* is the correct explanation of *A*
6. Which one of the following reactions does not occur during extraction of copper?
- A)  $\text{CaO} + \text{SiO}_2 \rightarrow \text{CaSiO}_3$     B)  $2\text{Cu}_2\text{S} + 3\text{O}_2 \rightarrow 2\text{Cu}_2\text{O} + 2\text{SO}_2$   
C)  $\text{FeO} + \text{SiO}_2 \rightarrow \text{FeSiO}_3$     D)  $2\text{FeS} + 3\text{O}_2 \rightarrow 2\text{FeO} + 2\text{SO}_2$

7. Match List I with List II

List I	List II
A Tranquilizers	i Anti blood clotting
B Aspirin	ii Salvarsan
C Antibiotic	iii Antidepressant drugs
D Antiseptic	iv Soframicine

Choose the correct answer from the options given below:

- A) (A) - II, (B) - IV, (C) - I, (D) - III      B) (A) - IV, (B) - II, (C) - I, (D) - III  
 C) (A) - III, (B) - I, (C) - II, (D) - IV      D) (A) - II, (B) - I, (C) - III, (D) - IV
8. Which one among the following metals is the weakest reducing agent?  
 A) *Rb*      B) *Na*  
 C) *Li*      D) *K*
9. Given below are two statements : one is labelled as Assertion (A) and the other is labelled as Reason (R)  
 Assertion (A):  $\alpha$ -halocarboxylic acid on reaction with dil  $NH_3$  gives good yield of  $\alpha$ -aminocarboxylic acid whereas the yield of amines is very low when prepared from alkyl halides  
 Reason (R): Amino acids exist in zwitter ion form in aqueous medium  
 In the light of the above statements, choose the correct answer from the options given below :  
 A) Both (A) and (R) are correct and (R) is the correct explanation of (A)      B) (A) is not correct but (R) is correct  
 C) Both (A) and (R) are correct but (R) is not the correct explanation of (A)      D) (A) is correct but (R) is not correct
10. When the hydrogen ion concentration  $[H^+]$  changes by a factor of 1000, the value of  $pH$  of the solution \_\_\_\_\_  
 A) decreases by 3 units      B) decreases by 2 units  
 C) increases by 2 units      D) increases by 1000 units
11. Given below are two statements : one is labelled as Assertion A and the other is labelled as Reason R :  
 Assertion (A) : Acetal / Ketal is stable in basic medium.  
 Reason (R) : The high leaving tendency of alkoxide ion gives the stability to acetal ketal in basic medium  
 In the light of the above statements, choose the correct answer from the options given below  
 A) Both A and R are true but R is NOT the correct explanation of A      B) A is false but R is true  
 C) A is true but R is false      D) Both A and R are true and R is the correct explanation of A
12. '25 volume' hydrogen peroxide means  
 A) 100 mL marketed solution contains 25 g of  $H_2O_2$ .      B) 1L marketed solution contains 75 g of  $H_2O_2$ .  
 C) 1L marketed solution contains 250 g of  $H_2O_2$ .      D) 1L marketed solution contains 25 g of  $H_2O_2$ .
13. The correct order in aqueous medium of basic strength in case of methyl substituted amines is :  
 A)  $NH_3 > Me_3N > MeNH_2 > Me_2NH$       B)  $Me_2NH > Me_3N > MeNH_2 > NH_3$   
 C)  $Me_2NH > MeNH_2 > Me_3N > NH_3$       D)  $Me_3N > Me_2NH > MeNH_2 > NH_3$



22. Given below are two statements:  
 Statement-I: Pure Aniline and other arylamines are usually colourless.  
 Statement-II: Arylamines get coloured on storage due to atmospheric reduction  
 In the light of the above statements, choose the most appropriate answer from the options given below:
- A) Both Statement-I and Statement-II are correct.      B) Both Statement-I and Statement-II are incorrect.  
 C) Statement-I is correct but Statement-II is incorrect.      D) Statement-I is incorrect but Statement-II is correct.
23. A cubic solid is made up of two elements  $X$  and  $Y$  Atoms of  $X$  are present on every alternate corner and one at the center of cube  $Y$  is at  $\frac{1}{3}td$  of the total faces The empirical formula of the compound is
- A)  $X_2Y_{1.5}$       B)  $X_{2.5}Y$   
 C)  $XY_{2.5}$       D)  $X_{1.5}Y_2$
24. A cubic solid is made up of two elements  $X$  and  $Y$  Atoms of  $X$  are present on every alternate corner and one at the center of cube  $Y$  is at  $\frac{1}{3}rd$  of the total faces. The empirical formula of the compound is
- A)  $X_2Y_{1.5}$       B)  $X_3Y_2$   
 C)  $XY_{2.5}$       D)  $X_{1.5}Y_2$
25. Decreasing order of dehydration of the following alcohols is
- A)  $a > d > b > c$       B)  $d > b > c > a$   
 C)  $b > a > d > c$       D)  $b > d > c > a$

# JEE MAIN CHEMISTRY ANSWER KEY

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