

# IIT JAM 2026 Chemistry Question Paper

Time Allowed :3 Hour	Maximum Marks :100	Total Questions :60
----------------------	--------------------	---------------------

## General Instructions

Please read the following instructions carefully:

1. The examination is of 3 hours duration. There are a total of 60 questions carrying 100 marks. The entire paper is divided into three sections, A, B and C. All sections are compulsory. Questions in each section are of different types.
2. Section A contains a total of 30 Multiple Choice Questions (MCQ). Each MCQ type question has four choices out of which only one choice is the correct answer. Questions Q.1 – Q.30 belong to this section and carry a total of 50 marks. Q.1 – Q.10 carry 1 mark each and Questions Q.11 – Q.30 carry 2 marks each.
3. Section B contains a total of 10 Multiple Select Questions (MSQ). Each MSQ type question is similar to MCQ but with a difference that there will be more than one choices that are correct out of the four given choices. The candidate gets full credit if he/she selects all the correct answers only and no wrong answers. Questions Q.31 – Q.40 belong to this section and carry 2 marks each with a total of 20 marks.
4. Section C contains a total of 20 Numerical Answer Type (NAT) questions. For these NAT type questions, the answer is a real number which needs to be entered using the virtual keyboard on the monitor. No choices will be shown for these type of questions. Questions Q.41 – Q.60 belong to this section and carry a total of 30 marks. Q.41 – Q.50 carry 1 mark each and Questions Q.51 – Q.60 carry 2 marks each.
5. In all sections, questions not attempted will result in zero mark. In Section A (MCQ), wrong answer will result in NEGATIVE marks. For all 1-mark questions, 1/3 marks will be deducted for each wrong answer. For all 2-mark questions, 2/3 marks will be deducted for each wrong answer. In Section B (MSQ), there is NO NEGATIVE and NO PARTIAL marking provisions. There is NO NEGATIVE marking in Section C (NAT) as well.
6. Only Virtual Scientific Calculator is allowed. Charts, graph sheets, tables, cellular phone or other electronic gadgets are NOT allowed in the examination hall.
7. A Scribble Pad will be provided for rough work.

---

1. Find the number of P–O–P (pyrophosphate) bonds present in  $P_4O_8$ .

---

2. Determine the shape of  $ClF_3$  using VSEPR theory.

---

3. List the compounds of Xenon having one lone pair on the central atom.

---

4. Write the van der Waals equation and explain the van der Waals isotherm (P–V curve).

---

5. Langmuir isotherm

(A) Multilayer adsorption

(B) Very high temperature  $\theta$  vs  $P$  curve with intercept

(C) Very low temperature  $\theta$  vs  $P$  curve with slope

(D) Reciprocal form gives  $\theta = \frac{KP}{1 + KP}$

---

6. Find the interplanar spacing  $d_{hkl}$  (in Å) using Bragg's law.

Given:  $n = 1$ ,  $\lambda = 1.54 \text{ Å}$

Use Bragg's law:  $n\lambda = 2d \sin \theta$ .

---

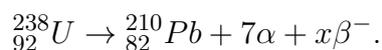
7. For the reaction:



If the degree of dissociation is  $\alpha = 0.2$ , find  $\Delta n_g$  and total number of moles at equilibrium (starting with 1 mole).

---

8. The radioactive decay is given as:



Find the value of  $x$ .

---

9. Among the following compounds of Xenon, identify those having exactly one lone pair on Xenon:

$XeF_2$ ,  $XeO_2F_2$ ,  $XeO_3$ ,  $XeO_3F_2$ ,  $XeOF_2$ .

---

10. Isothermal compressibility of an ideal gas

$$-\frac{1}{V} \left( \frac{dV}{dP} \right)_T$$

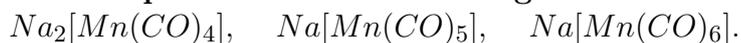
is equal to

- (A)  $\frac{nR}{P}$
  - (B)  $nR$
  - (C)  $R$
  - (D)  $\frac{1}{P}$
- 

11. Which of the following has the highest melting point?

- (A) LiBr
  - (B) NaBr
  - (C) MgBr<sub>2</sub>
  - (D) AlBr<sub>3</sub>
- 

12. Compare the M–C bond length in the following complexes:



13. Given  $C_p = a + bT$

$a = 19.5$ ,  $b = 0.042$ ,  $n = 1$  mole

Temperature changes from  $27^\circ C$  to  $327^\circ C$ .

Find  $\Delta H$ .

---

14. T-shape geometry is shown by

- (A) XeF<sub>2</sub>
  - (B) SO<sub>2</sub>
  - (C) IO<sub>4</sub><sup>-</sup>
  - (D) BrF<sub>3</sub>
- 

15. Which of the following has tetrahedral coordination?

- (A) CdI<sub>2</sub>
  - (B) CsCl
  - (C) ZnS (sphalerite)
  - (D) ZnS (wurtzite)
-