

JEE Main 2024 Question Paper Jan 29 Shift 2 (B.E./B.Tech)

JEE Main Physics Questions

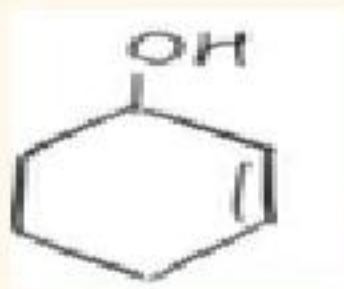
Ques 1. Best reducing agent among the given ions are:

- A. Ce^{4+}
- B. Gd^{2+}
- C. Lu^{3+}
- D. Nd^{3+}

Ans. B

Ques 2. Oxidation state of Fe(iron) in complex formed in brown ring test

Ans. +3

Ques 3. IUPAC Name of the compound  is

- A. Hex-2-en-1-ol
- B. Cyclohex-2-en-1-ol
- C. 3-Hydroxycyclohexane
- D. Cyclohex-1-en-3-ol

Ans. B

Ques 4 . Why does oxygen show anomalous behavior

- A. Large size, high electronegativity
- B. Small size, small electronegativity
- C. Small size, high electronegativity, absence of vacant d- orbital
- D. Large size high electronegativity presence of vacant d orbital

Ans. C

Ques 5. How many of the following compounds have zero dipole moment.
NH₃, H₂O, HF, CO₂, SO₂, BF₃, CH₄

Ans. 3

Ques 6. In a simple pendulum of length 10 m, the string is initially kept horizontal and the bob is released. 10% of energy is lost till the bob reaches the lowest position. Then find the speed of the bob at the lowest position.

- A. 6 m/s
- B. $6\sqrt{5}$ m/s
- C. $7\sqrt{5}$ m/s
- D. $4\sqrt{2}$ m/s

Ans. B

Ques 7. The intensity at each slit is equal for a YDSE and it is maximum $I_{\max}$ at 7π central maxima. If I is intensity for phase difference $7\pi/2$ between two waves on screen. Then $I/I_{\max}$ is?

- A. $\frac{1}{2}$
- B. $\frac{1}{4}$
- C. $\frac{3}{8}$
- D. $1/\sqrt{2}$

Ans. A

JEE Main Chemistry Questions

Ques 1. Which of the following elements has the highest 1st ionization energy ?

- A. N
- B. C
- C. Si
- D. Al

Ans. A

Ques 2. Which reagent gives bright red ppt. With Ni^{2+} in basic medium?

- A. DMG
- B. Nessler's Reagent
- C. KCNS
- D. $\text{K}_4[\text{Fe}(\text{CN})_6]$

Ans. A

Ques 3. Match the following:

- | | |
|-------------|---------------|
| (A) Lyman | (i) IR |
| (B) Balmer | (ii) IR |
| (C) Paschen | (iii) Visible |
| (D) p-fund | (iv) UV |

- A. A $\rightarrow$ (iv), B $\rightarrow$ (iii), C $\rightarrow$ (i), D $\rightarrow$ (ii)
- B. A $\rightarrow$ (iv), B $\rightarrow$ (i), C $\rightarrow$ (iii), D $\rightarrow$ (ii)
- C. A $\rightarrow$ (i). B $\rightarrow$ (iii). C. $\rightarrow$ (ii). D $\rightarrow$ (iv)
- D. A $\rightarrow$ (i). B $\rightarrow$ (ii). C $\rightarrow$ (iii). D $\rightarrow$ (iv)

Ans. A

Ques 4. IUPAC name of K_2MnO_4 is

- A. Potassium tetraoxomanganate(VI)
- B. Potassium tetraoxomanganate(III)
- C. Potassium tetraoxomanganate(VI)
- D. Tetraoxomanganate(VI) potassium

Ans. A

Ques 5. If standard enthalpy of vaporization of CCl_4 is 30.5 kJ/mol , find heat absorbed for vaporization of 294 gm of CCl_4 . [Nearest integer] [in kJ/mol]

Ans. 57

JEE Main Mathematics Questions

Ques 1. Given set = $\{1, 2, 3, \dots, 50\}$ one number is selected randomly from the set. Find the probability that number is multiple of 4 or 6 or 7.

- A. $21/50$
- B. $18/50$
- C. $8/25$
- D. $21/25$

Ans. A

Ques 2. The value of $\int_{\frac{\pi}{6}}^{\frac{\pi}{3}} \sqrt{1 - \sin 2x} \, dx$ is

- A. $\sqrt{2} - \sqrt{3} + 1$
- B. $2\sqrt{2} - \sqrt{3} - 1$
- C. $2\sqrt{2} + \sqrt{3} - 1$
- D. $\sqrt{2} + \sqrt{3} - 1$

Ans. B

Ques 3. The remainder when $64^{32^{32}}$ is divided by 9 is

Ans. 1

Ques 4. Area bounded by $0 \leq y \leq \min\{x^2 + 2, 2x + 2\}$, $x \in [0, 3]$ then 12A is

Ans. 164

Ques 5. $A = \{1, 2, 3, 4\}$ minimum number of elements added to make an equivalence relation on set A containing $(1, 3)$ & $(1, 2)$ in it.

- A. 8
- B. 9
- C. 12
- D. 16

Ans. A