
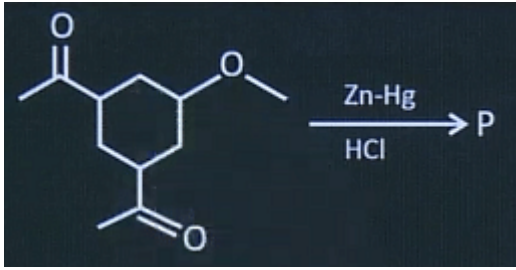
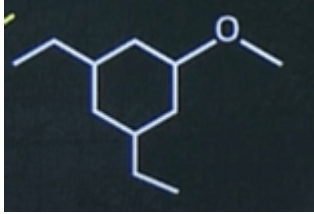
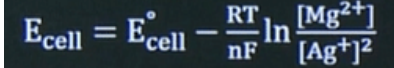
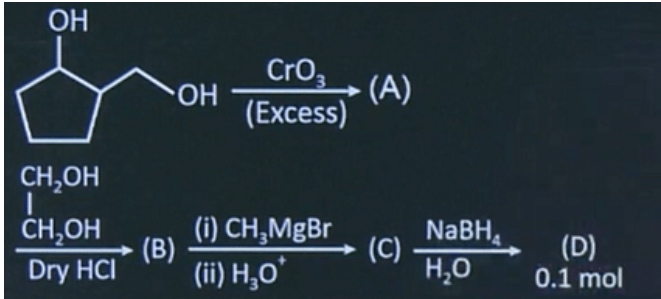
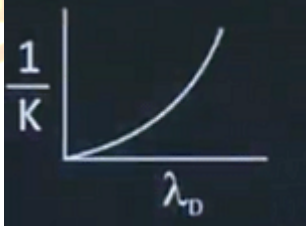
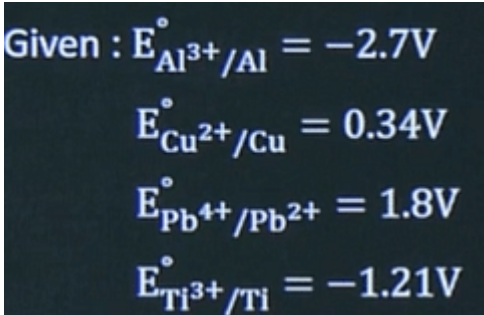


## JEE MAIN 29 JANUARY 2025 SHIFT 1

### CHEMISTRY QUESTION PAPER WITH ANSWER KEY

Q. No.	Questions	Answers
1	Which of the following is animal starch?	Glycogen
2	<p><b>Statement-1:</b> Correct order of ionic radius for <math>Mg^{2+}</math>, <math>Na^+</math>, <math>O^{2-}</math> &amp; <math>F^-</math> is <math>F^- &gt; O^{2-} &gt; Na^+ &gt; Mg^{2+}</math></p> <p><b>Statement-2:</b> Correct order of magnitude of gain Enthalpy for 17<sup>th</sup> group follows order <math>Cl &gt; F &gt; Br &gt; I</math> (Magnitude only)</p>	Statement 1 is incorrect & Statement 2 is correct
3	Calculate the total number of sigma and $\pi$ bond in the given molecule? 	15 bonds
4	Chromite ore + $Na_2CO_3$ + $O_2 \rightarrow$ insoluble product containing Fe. Calculate the molar mass of insoluble product formed. (Given: Molar mass of Cr = 52 g/mol, Na = 23 g/mol, Fe = 56 g/mol, O = 16 g/mol)	160
5	Consider the following complexes- 1. $[Mn(CN)_6]^{4-}$ 2. $[Fe(CN)_6]^{4-}$ 3. $[Fe(CN)_6]^{3-}$ 4. $[Co(CN)_6]^{3-}$ Correct order of CFSE ( $\Delta_0$ ) will be	$4 > 3 > 2 > 1$

<p>6</p>	<p>Consider the following reaction</p>  <p>Identify the final product P:</p>	
<p>7</p>	<p>What is the value of van't Hoff Factor for <math>A_2B</math> if 30% of <math>A_2B</math> is dissociated?</p>	<p>1.60</p>
<p>8</p>	<p>Find the order of the reaction</p> $A + B \rightarrow F$ <p>if the mechanism of the reaction is given below:</p> <p>Step 1: <math>A + B \rightarrow D</math> (slow)</p> <p>Step 2: <math>D \rightarrow C + E</math> (fast)</p> <p>Step 3: <math>C + E \rightarrow F</math> (fast)</p>	<p>2</p>
<p>9</p>	<p>Match the following</p> <p>(A) <math>[Co(OX)_3]^{3-}</math> - (i) <math>sp^3d^2</math></p> <p>(B) <math>[FeF_6]^{3-}</math> - (ii) <math>d^2sp^3</math></p> <p>(C) <math>[Ni(CO)_4]</math> - (iii) <math>dsp^2</math></p> <p>(D) <math>[PtCl_4]^{2-}</math> - (iv) <math>sp^3</math></p>	<p>A-(ii), B-(i), C-(iv), D-(iii)</p>
<p>10</p>	<p>What is the correct Nernst equation representation for the following cell reaction</p> $Mg(s) \rightarrow Mg^{2+} + 2e^-$ $Ag^+ + e^- \rightarrow Ag(s)$	
<p>11</p>	<p>The correct order of melting point of d-block elements is:</p>	<p>Fe &gt; Mn</p>

<p>12</p>	<p>Consider the following reaction-</p>  <p>Find the mass of final product (D) formed in gm (nearest integer)</p>	<p>13</p>
<p>13</p>	<p><math>\lambda_m</math> is directly proportional to <math>\sqrt{c}</math> for an electrolyte, then molar conductance for the same electrolyte at infinite dilution shows</p>	<p>small increase</p>
<p>14</p>	<p>Given that the ionisation enthalpy of element <math>E_{(g)}</math> is 300 kJ/mol and electron gain enthalpy of A, B, C and D gases atoms are -320 kJ/mol, -340 kJ/mol, -200 kJ/mol and -250 kJ/mol, then what will be the correct order of ionic nature of compounds?</p>	<p>EB&gt;EA&gt;ED&gt;EC</p>
<p>15</p>	<p>Graph between de Broglie wavelength (<math>\lambda_D</math>) and kinetic energy (K) of an electron is</p>	
<p>16</p>	<p>Which of the following ions is strongest oxidising agent</p> 	<p>Pb<sup>4+</sup></p>

17	<p>How many of following can act as nucleophiles</p> <div style="background-color: black; color: white; padding: 10px; border: 1px solid black;"> <math display="block">\text{Ph-SH}, \text{OH}^-, \text{CH}_2=\text{CH}_2, \text{&gt;N-CH}_3, \text{H}_3\text{O}^+,</math> <math display="block">\text{CH}_3-\overset{\text{O}}{\parallel}{\text{C}}-\text{CH}_3 \quad \text{S} \begin{matrix} \text{CH}_3 \\ \text{CH}_3 \end{matrix}</math> </div>	6
18	<p>Consider the following reaction</p> <div style="background-color: black; color: white; padding: 10px; border: 1px solid black;"> <math display="block">\text{A}_2\text{B}(\text{g}) \xrightleftharpoons{2\uparrow} \text{A}_2(\text{g}) + \frac{1}{2}\text{B}_2(\text{g})</math> </div> <p>If P is total pressure at equilibrium &amp; <math>K_p</math> is equilibrium constant. Then <math>\alpha</math> in terms of <math>K_p</math> &amp; P is (Assume <math>\alpha \ll 1</math>)</p>	$3\sqrt{2k_p^2/P}$