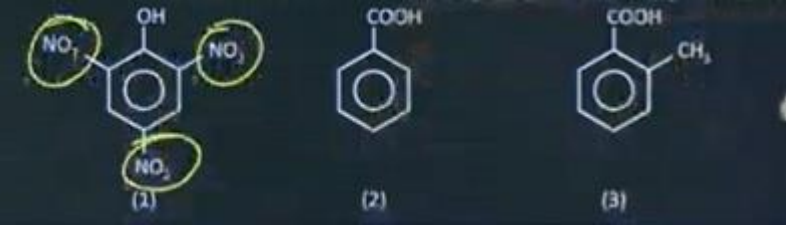
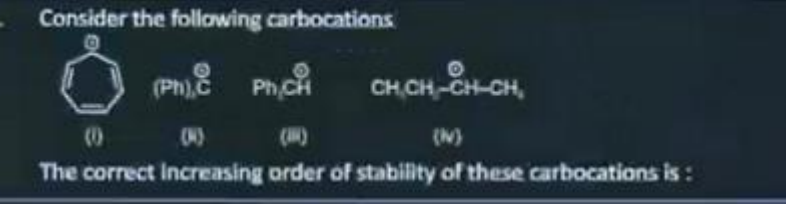
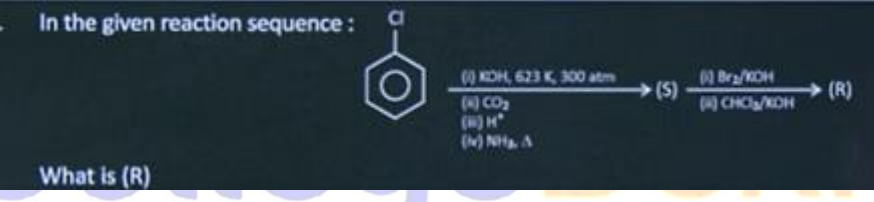
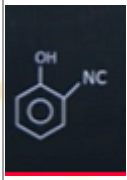
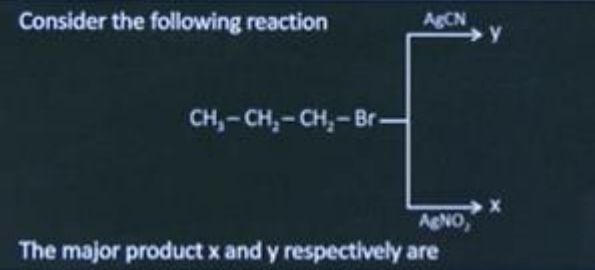
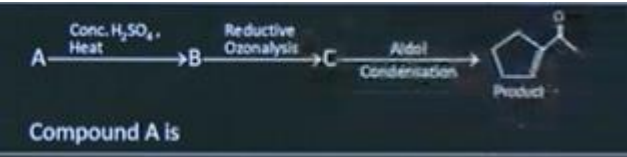
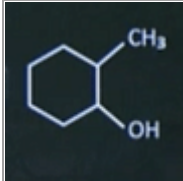



JEE MAIN 28 JANUARY 2025 SHIFT 1

CHEMISTRY QUESTION PAPER WITH ANSWER KEY

Q.No	Questions	Answers
1	<p>What is the rate of reaction for releasing $\text{CO}_2(\text{g})$ with aq. NaHCO_3 among the following?</p> 	1>3>2
2	<p>Consider the following carbocations:</p>  <p>The correct increasing order of stability of these carbocations is :</p>	i> ii> iii> iv
3	<p>In the given reaction sequence :</p>  <p>What is (R)</p>	
4	Which of the following pair have square pyramidal shape?	BrF_5 , XeOF_4
5	Which of the following set of quantum numbers have same energy?	c,d
6	$\Delta_1\text{H}$ of $\text{H}(\text{g})$ is 222kJ/mol , $\Delta_1\text{H}$ of $\text{O}(\text{g})$ is 250kJ/mol , $\Delta_1\text{H}$ of H_2O is -248kJ/mol . what is the value of Bond Energy of the O-H bond in H_2O in kJ/mol .	471
7	70% of mass solution of HNO_3 is taken heavy density 1.41 gm/ml . Calculate morality (Rounded off to nearest integer)	16
8	<p>Consider the following reaction</p>  <p>The major product x and y respectively are</p>	$\text{CH}_3\text{CH}_2\text{CH}_2\text{NO}_2$ & $\text{CH}_3\text{CH}_2\text{CH}_2\text{N}$ C

10	<p>Match the following column and choose the correct option.</p> <table border="1"> <thead> <tr> <th></th> <th>Column-I</th> <th></th> <th>Column-II</th> </tr> </thead> <tbody> <tr> <td>(A)</td> <td>$H_2O_2 \rightarrow H_2O + O_2$</td> <td>(P)</td> <td>Combustion reaction</td> </tr> <tr> <td>(B)</td> <td>$NaH \rightarrow Na + H_2$</td> <td>(Q)</td> <td>Disproportionation</td> </tr> <tr> <td>(C)</td> <td>$CH_4 + O_2 \rightarrow CO_2 + H_2O$</td> <td>(R)</td> <td>Decomposition reaction</td> </tr> <tr> <td>(D)</td> <td>$Fe + CuSO_4 \rightarrow FeSO_4 + Cu$</td> <td>(S)</td> <td>Displacement reaction</td> </tr> </tbody> </table>		Column-I		Column-II	(A)	$H_2O_2 \rightarrow H_2O + O_2$	(P)	Combustion reaction	(B)	$NaH \rightarrow Na + H_2$	(Q)	Disproportionation	(C)	$CH_4 + O_2 \rightarrow CO_2 + H_2O$	(R)	Decomposition reaction	(D)	$Fe + CuSO_4 \rightarrow FeSO_4 + Cu$	(S)	Displacement reaction	A(Q), B(R), C(P), D(S)
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(D)	$Fe + CuSO_4 \rightarrow FeSO_4 + Cu$	(S)	Displacement reaction																			
11	Among the following the incorrect order of atomic radius is	B > Al > Mg > F																				
12	1g of a non electrolyte solute (MW=256g/mol) dissolved in 50g of solvent, freezing point of solution lowered by 0.40K. Calculate the molal depression constant of solvent.	5																				
13	A compound contains 14.4% Carbon, 1.2% Hydrogen, and 84.4% Chlorine. Calculate empirical formula mass of compound. (Molar mass of C=12, H=1, Cl=35.5)	84																				
14	 <p>Compound A is</p>																					
15	 <p>Statement-I: Compound (2) shows faster alkaline hydrolysis compared to (1). Statement-II: Compound (1) shows substitution via neighbouring group participation.</p>	Statement I is incorrect and Statement II is correct																				
16	Which of the following has same energy in absence of electric and magnetic field for hydrogen atom	2s, 2p																				
17	Which of the following reactions /tests can be used to distinguish acetaldehyde and acetone	D and E only																				
18	Which of the following give violet color in Borax bead test?	Mn ²⁺																				
19	Which of the following compounds have the same number of lone pair on central atoms ClF ₃	XeF ₅																				
20	Statement 1: For Titration of oxalic acid using KMnO ₄ , warming of acid solution is required whereas in case of Ferrous Ammonium Sulphate, it is done at room temperature. Statement 2: Fe ²⁺ converts to Fe ³⁺ ions during titration	Statement 1 and Statement 2 are correct																				