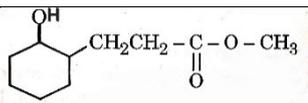
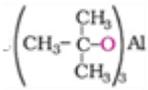
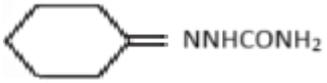
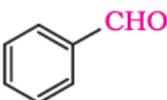
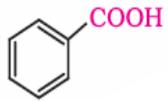
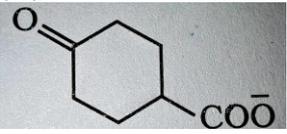
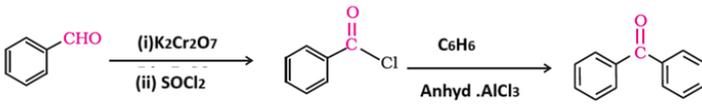
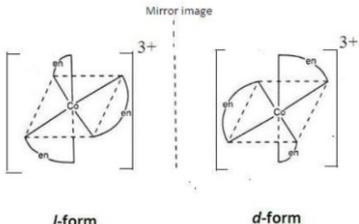
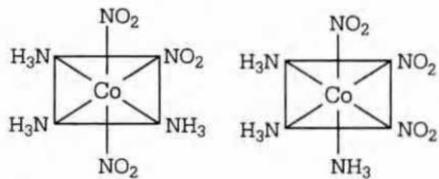


Q.No	Value points	Mark
<b>SECTION A</b>		
1	(B)	1
2	(A)	1
3	(C)	1
4	(A)	1
5	(B)	1
6	(D)	1
7	(A)	1
8	(B)	1
9	(D)	1
10	(D)	1
11	(B)	1
12	(C)	1
13	(C)	1
14	(A)	1
15	(D)	1
16	(A)	1
<b>SECTION B</b>		
17	Order of the reaction =1 / First Rate =k[A]	1 1
<b>OR</b>		
17	Rate of the reaction will increase. Rate constant remains same.	1 1
18	Structural formula: $K_2[PtCl_6]$ IUPAC Name: Potassium hexachloridoplatinate(IV)	1 1
19	Galvanic cell which converts the energy of combustion of fuels directly into electrical energy. Advantages 1.High efficiency 2.Pollution free (or any other two correct advantages)	1 $\frac{1}{2} \times 2 = 1$
20	(a)  (b) 	1 1
21	<ul style="list-style-type: none"> <li>Amino-acids which cannot be synthesized in the body and must be obtained through diet.</li> <li>In zwitter ionic form, amino-acids react both with acids and bases./ Due to the presence of both carboxylic group and amino group.</li> </ul>	1 1
<b>SECTION C</b>		
22(a)	(i) Greater stability of allylic carbocation due to resonance. (ii) Being covalent in nature, only nitrogen is free to donate electron pair in AgCN. (iii) Less sterically hindered carbon in Methyl chloride/ greater steric hinderance on tertiary carbon of t-butyl chloride.	1 1 1
<b>OR</b>		
22(b)	(i) A = $CH_3CH_2CH_2Br$ B = $CH_3CH_2CH_2OH$ (ii) A = $CH_3CH=CHCH_3$ B = $CH_3CH_2CH(Br)CH_3$	$\frac{1}{2} \times$ 6=3



30	(a) 2-Deoxyribose, Phosphoric acid, Nitrogenous base.	1				
	<table border="1"> <thead> <tr> <th>DNA</th> <th>RNA</th> </tr> </thead> <tbody> <tr> <td>1. Double stranded helix</td> <td>Single stranded helix</td> </tr> </tbody> </table>	DNA	RNA	1. Double stranded helix	Single stranded helix	1
	DNA	RNA				
	1. Double stranded helix	Single stranded helix				
(or any other suitable structural difference)						
(b)	<table border="1"> <thead> <tr> <th>Nucleotide</th> <th>Nucleoside</th> </tr> </thead> <tbody> <tr> <td>1. Pentose sugar + Nitrogenous base + Phosphate</td> <td>1. Pentose sugar + Nitrogenous base</td> </tr> </tbody> </table>	Nucleotide	Nucleoside	1. Pentose sugar + Nitrogenous base + Phosphate	1. Pentose sugar + Nitrogenous base	1
Nucleotide	Nucleoside					
1. Pentose sugar + Nitrogenous base + Phosphate	1. Pentose sugar + Nitrogenous base					
(c)						
(i) To preserve genetic information and Protein synthesis	OR	1				
(c)(ii) Phosphodiester linkage						
Uracil		$\frac{1}{2} + \frac{1}{2}$				
SECTION E						
31	(a)(i) (I)	1				
						
	(II) $\text{CH}_3\text{COCH}_3$	1				
	(III)	1				
						
	(ii) (I) Benzoic acid with Sodium bicarbonate gives brisk effervescence. No reaction with Ethyl benzoate	1				
(ii) Propanal, when heated with ammoniacal solution of silver nitrate (Tollens' reagent) gives silver mirror. No reaction with propanone	1					
	(or any other suitable chemical test)					
OR						
31	(b)(i)(I)	1				
						
	(II) 1. $(\text{BH}_3)_2$ , 2. $\text{H}_2\text{O}_2/\text{OH}^-$ , 3. PCC	1				
	(III)	1				
						
	(b)(ii)					
(I)		1				
						
(II) $\text{C}_6\text{H}_5\text{CHO} \xrightarrow{\text{CH}_3\text{CHO, dil NaOH, } \Delta} \text{C}_6\text{H}_5\text{CH}=\text{CHCHO} \xrightarrow{\text{H}_2/\text{Ni}} \text{C}_6\text{H}_5\text{CH}_2\text{CH}_2\text{CH}_2\text{OH}$	1					
	(Or any other suitable method)					
32	(a)(i)					
	(I) CO being a strong field ligand, causes pairing of electrons therefore, there is no unpaired electron.	1				

	<p>Whereas <math>\text{Cl}^-</math> is a weak field ligand, does not cause pairing, therefore presence of unpaired electrons.</p> <p>(II) CO can form both sigma (<math>\sigma</math>) and pi (<math>\pi</math>) bond with central metal atom/Metal to ligand bonding creates synergic effect between CO and the Metal.</p> <p>(III) Mirror images are superimposable/ Presence of plane of symmetry.</p> <p>(ii)</p> <p>(I) <math>\Delta_0 &gt; P</math>, causes pairing of electrons, therefore 1 unpaired electron</p> <p>(II) <math>\Delta_0 &lt; P</math>, No pairing of electrons therefore 5 unpaired electrons</p>	<p>1</p> <p>1</p> <p>1</p> <p>1</p>
<b>OR</b>		
<b>32</b>	<p>(b)(i)</p> <p>(I) Coordination Isomerism / <math>[\text{Cr}(\text{NH}_3)_6][\text{Co}(\text{CN})_6]</math></p> <p>(II) Optical Isomerism /</p>  <p>(III) Geometrical isomerism /</p>  <p>(ii) Weak field ligands produce weak field and leads to small splitting of d-orbitals whereas strong field ligands produce strong field leading to large splitting of d-orbitals.</p> <p>Strong field ligands cause pairing of electrons/a smaller number of unpaired electrons hence produces low spin complexes and weak field ligands causes no pairing of electrons/ a greater number of unpaired electrons hence produces high spin complexes.</p>	<p><math>\frac{1}{2}, \frac{1}{2}</math></p> <p><math>\frac{1}{2}, \frac{1}{2}</math></p> <p><math>\frac{1}{2}, \frac{1}{2}</math></p> <p>1</p> <p>1</p>
<b>33</b>	<p>(a)</p> <p>(i)</p> $k = \frac{2.303}{t} \log \frac{[\text{R}]_0}{[\text{R}]}$ $k = \frac{2.303}{60} \log \frac{1.2 \times 10^{-2}}{0.2 \times 10^{-2}}$ $= \frac{2.303}{60} \log 6$ $= \frac{2.303}{60} \times 0.778$ $k = 2.98 \times 10^{-2} \text{ min}^{-1} / 0.0298 \text{ min}^{-1} \quad (\text{Deduct } \frac{1}{2} \text{ mark for incorrect or no unit.})$ <p>(ii)</p> <p>(I) Order is determined experimentally.</p> <p>(II) If one of the reactants is taken in excess.</p>	<p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>
<b>OR</b>		
<b>33</b>	<p>(b)(i)</p> $\log \frac{k_2}{k_1} = \frac{E_a}{2.303R} \left[ \frac{1}{T_1} - \frac{1}{T_2} \right]$	<p>1</p>

	$\log \frac{2k_1}{k_1} = \frac{E_a}{19.15} \left[ \frac{1}{298} - \frac{1}{308} \right]$ $0.3 = \frac{E_a}{19.15} \left[ \frac{10}{298 \times 308} \right]$ $E_a = \frac{0.3 \times 19.15 \times 298 \times 308}{10}$ $E_a = 52729 \text{ Jmol}^{-1} \text{ or } 52.729 \text{ kJmol}^{-1}$	<p>1</p> <p>1</p> <p>(Deduct ½ mark for incorrect or no unit.)</p>
	(ii)	1
	(1). Rate= k[H <sub>2</sub> O <sub>2</sub> ] [I <sup>-</sup> ]	½
	(2) Overall order : 2/ Second	½
	Molecularity : 2 / Bimolecular	