

1	<p>A titration of oxalic acid solution was performed with 0.01 N solution of <math>\text{KMnO}_4</math>. Of different activities given below, which one leads to a method error in the measurement:</p> <p>(a) using uncalibrated burette  (b) carrying out the titration at room temperature  (c) reading burette with lower meniscus  (d) rinsing the pipette with oxalic acid solution before use</p>
2	<p>Chemical oxygen demand for waste water can be expressed as:</p> <p>(a) <math>\mu\text{g} / \text{mL}</math>      (b) <math>\text{mg} / \text{mL}</math>      (c) ppt      (d) <math>\mu\text{g} / \text{L}</math></p>
3	<p>A 0.1 M aqueous solution of sodium carbonate was prepared by weighing 1.06 g of anhydrous material, dissolving it into about 70 mL of water and making up the volume to 100 mL. Standard solution of which of the following substances can be used to standardize the prepared sodium carbonate solution?</p> <p>(a) oxalic acid                      (b) succinic acid  (c) monosodium oxalate      (d) potassium hydrogen phthalate</p>
4	<p>Among the following, identify the replicates in chemical analysis.</p> <p>(a) ten students performed gravimetric determination of a solution of silver nitrate by precipitating silver chloride by pipetting 25 mL each of the given stock solution  (b) one student determined hardness of three samples of water by performing one titration each of the three solutions with standard EDTA  (c) one student standardized 100 mL of dilute sodium hydroxide solution by titrating 10 mL each of the solution three times with standard acid solution.  (d) one student analyzed the given 10mL, 25 mL and 50 mL of ferric chloride solutions for gravimetric determination of iron</p>
5	<p>In the solvent extraction of Fe(III) from 6 molar HCl solution containing 200 mg at pH 4.4, using oxine, a single extraction results into extraction of 100 mg of Fe(III), while at pH 6.4, about 5 mg of Fe(III) gets extracted. What is pH 4.4 called?</p> <p>(a) pKa              (b) pKb              (c) <math>\text{pH}_{1/2}</math>              (d) <math>\text{pH}_{2/3}</math></p>
6	<p>Which of the following electrode combinations cannot be used for determination of pH of an aqueous solution?</p> <p>(a) silver / silver chloride electrode with standard hydrogen electrode  (b) standard hydrogen electrode with another standard hydrogen electrode through salt bridge  (c) standard hydrogen electrode with standard calomel electrode  (d) a glass electrode coupled with a standard calomel electrode</p>
7	<p>Which of the following conditions is true when there is no weight loss in a DTG curve?</p> <p>(a) <math>dW/dt \neq 0</math>      (b) <math>dW/dt = 0</math>      (c) <math>dW/dt &gt; 1</math>      (d) <math>dW/dt &lt; 1</math></p>
8	<p>One of the factors affecting intensity of absorption bands in UV-Visible spectra is probability of electronic transition. Which of the following transitions would give most intense bands?</p> <p>(a) d-d transition                      (b) <math>n-\pi^*</math> transition  (c) donor HOMO to acceptor LUMO      (d) f-f transition</p>

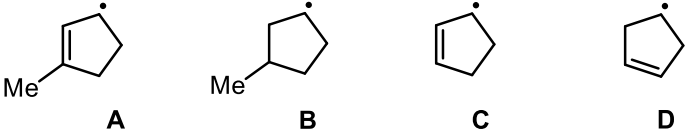
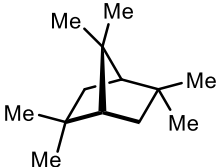
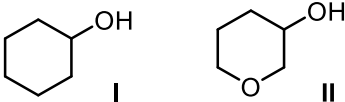
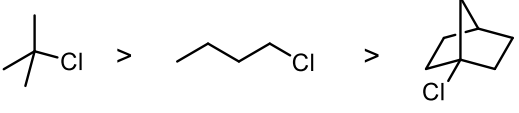
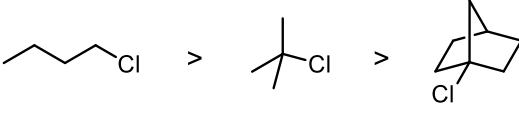
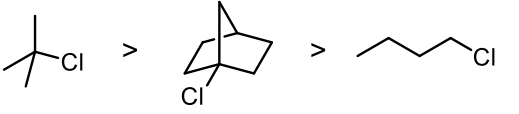
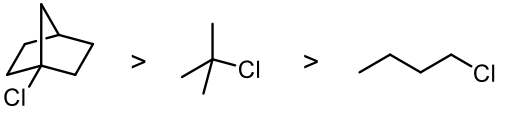
9	Which of the following is not a suitable technique for assay of sodium and potassium in blood samples? (a) AAS (b) FAES (c) ICP-AES (d) IR
10	Pick up odd one from the following: (a) Photomultiplier tube (b) Bolometer (c) Thermocouple (d) DTGS detector
11.	Which quantum number is related to the energy, shape and the number of angular nodes of / in an atomic orbital? (a) n (b) l (c) m (d) s
12.	The number of radial nodes in 5p orbitals is (a) 4 (b) 3 (c) 2 (d) 1
13.	Mercury, though metal, is liquid at normal temperatures because of its (a) low cohesive energy (b) low atomic number (c) low heat of dissociation (d) All of a, b, c
14.	Identify the series with correct order of stability of the complexes. (a) $[\text{Cu}(\text{en})_2]\text{Cl}_2 > [\text{Cu}(\text{en})_2](\text{NO}_3)_2 > [\text{Cu}(\text{en})_2]\text{SO}_4$ . (b) $[\text{Cu}(\text{tren})]\text{Cl}_2 > [\text{Cu}(\text{en})_2]\text{Cl}_2 > [\text{Cu}(\text{NH}_3)_4]\text{Cl}_2$ . (c) $[\text{Ag}(\text{NH}_3)_4]\text{Cl} > [\text{Au}(\text{NH}_3)_4]\text{Cl} > [\text{Cu}(\text{NH}_3)_4]\text{Cl}_2$ . (d) $[\text{Cr}(\text{en})_2]\text{Cl}_2 > [\text{Cu}(\text{en})_2]\text{Cl}_2 > [\text{Zn}(\text{en})_2]\text{Cl}_2$ . [en = ethylene diamine, tren =triethylene tetraamine]
15.	Which of the following transition metal ions undergoes Jahn-Teller distortion? (a) $\text{Cr}^{2+}$ (b) $\text{Cr}^{3+}$ (c) $\text{Cr}^{6+}$ (d) $\text{Co}^{3+}$
16.	Alpha-graphite and beta-graphite have (a) Same hybridization of C orbitals but different chemical properties (b) Different hybridization of C orbitals and different chemical properties (c) Hexagonal structure (d) Different arrangement of stacks of layers
17.	Beryl and Emerald , respectively, are examples of (a) Both cyclic silicates, (b) Sheet silicates and orthosilicates (c) cyclic silicate and disilicate (d) pyrosilicate and sheet silicate

18.	<p>Which of the following hydroxides is basic in character?</p> <p>(a) <math>\text{Be}(\text{OH})_2</math>    (b) <math>\text{B}(\text{OH})_3</math>    (c) <math>\text{Al}(\text{OH})_3</math>    (d) <math>\text{TlOH}</math></p>														
19.	<p>The anion, <math>\text{S}_2\text{O}_4^{2-}</math> is named as</p> <p>(a) Thiosulphate    (b) dithionate    (c) dithionite    (d) tetrathionate</p>														
20.	<p>Which of the following is the most acidic? (Hint: Consider the dissociation of the first proton in case of more than one H present)</p> <p>(a) <math>\text{H}_4\text{P}_2\text{O}_7</math>    (b) <math>\text{H}_3\text{PO}_3</math>    (c) <math>\text{H}_3\text{PO}_4</math>    (d) <math>\text{H}_2\text{PO}_4^-</math></p>														
21.	<p>The hybridization of Cl atom orbitals in <math>\text{ClF}_3</math> and its shape are, respectively,</p> <p>(a) <math>sp^2</math>, trigonal planar  (b) <math>sp^3</math>, trigonal pyramidal  (c) <math>dsp^3</math>, trigonal planar  (d) <math>dsp^3</math>, bent T</p>														
22.	<p>The hydrophobicity of silicones is due to the presence of</p> <p>(a) Si-O-Si framework  (b) Si-O-R groups  (c) Si-R groups  (d) Si-OH groups at the exterior</p>														
23.	<p>Doping of Indium in Silicon results in the</p> <p>(a) formation of an n-type semiconductor  (b) addition of a conduction band with lower energy than that in Si  (c) addition of a valence band  (d) increase in the band gap</p>														
24.	<p>Given below is Frost diagram of an element. What does it indicate about the stability of various oxidation states of the element?</p> <div data-bbox="571 1417 1114 1787" style="text-align: center;"> <table border="1" style="margin-left: auto; margin-right: auto;"> <caption>Data points from the Frost diagram</caption> <thead> <tr> <th>Oxidation Number</th> <th><math>nE^\circ</math></th> </tr> </thead> <tbody> <tr><td>0</td><td>0</td></tr> <tr><td>2</td><td>-2</td></tr> <tr><td>3</td><td>-1</td></tr> <tr><td>4</td><td>0</td></tr> <tr><td>6</td><td>4.5</td></tr> <tr><td>7</td><td>5</td></tr> </tbody> </table> </div> <p>(a) Oxidation state 3 is more stable than 2 and 4  (b) Oxidation state 4 is less stable than 3 and 6  (c) 2 is the least stable oxidation state  (d) Species with oxidation states 3 and 6 are unstable</p>	Oxidation Number	$nE^\circ$	0	0	2	-2	3	-1	4	0	6	4.5	7	5
Oxidation Number	$nE^\circ$														
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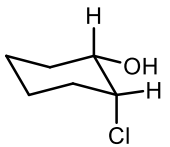
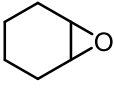
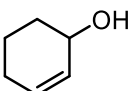

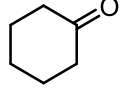
25.	<p>Which of the following 2 reactions are possible?</p> <p>i. <math>2\text{FeCl}_3 + \text{SnCl}_2 \rightarrow 2\text{FeCl}_2 + \text{SnCl}_4</math></p> <p>ii. <math>2\text{FeCl}_2 + \text{SnCl}_4 \rightarrow 2\text{FeCl}_3 + \text{SnCl}_2</math></p> <p>iii. <math>\text{PbCl}_2 + \text{SnCl}_4 \rightarrow \text{SnCl}_2 + \text{PbCl}_4</math></p> <p>iv. <math>\text{SnCl}_2 + \text{PbCl}_4 \rightarrow \text{PbCl}_2 + \text{SnCl}_4</math></p> <p>(a) i and ii    (b) i and iii    (c) i and iv    (d) ii and iv</p>
26.	<p>Oxidation of ferrous ion by <math>\text{Ce}^{4+}</math> and <math>\text{KMnO}_4</math> is attempted in separate reactions. The following is expected to happen.</p> <p>(a) <math>\text{Ce}^{4+}</math> is not a good oxidizing agent and hence, will not oxidize <math>\text{Fe}^{2+}</math> quantitatively.</p> <p>(b) <math>\text{KMnO}_4</math> is a stronger oxidizing agent with Mn in +7 oxidation state and hence the reaction with <math>\text{KMnO}_4</math> will be faster.</p> <p>(c) Both are strong oxidizing agents and hence both reactions will be equally fast.</p> <p>(d) The reaction with <math>\text{Ce}^{4+}</math> is a complementary reaction while that with <math>\text{KMnO}_4</math> is non-complementary. Hence, the reaction with <math>\text{Ce}^{4+}</math> will be faster.</p>
27.	<p>The product formed in the reaction where 3 <math>\text{Cl}^-</math> ligands in <math>[\text{PtCl}_4]^{2-}</math> are successively substituted by one each of <math>\text{NH}_3</math>, <math>\text{NO}_2^-</math> and py (= pyridine) in the same order is</p> <p>(a) <math>\text{Trans-}[\text{Pt}(\text{py})(\text{NH}_3)(\text{Cl})(\text{NO}_2)]</math></p> <p>(b) <math>\text{Trans-}[\text{Pt}(\text{Cl})(\text{NH}_3)(\text{py})(\text{NO}_2)]</math></p> <p>(c) <math>\text{Trans-}[\text{Pt}(\text{Cl})(\text{py})(\text{NH}_3)(\text{NO}_2)]</math></p> <p>(d) <math>\text{Trans-}[\text{Pt}(\text{Cl})_2(\text{NH}_3)(\text{py})]</math></p>
28.	<p>The entropy change during a ligand substitution reaction following A mechanism is</p> <p>(a) Positive    (b) Negative    (c) Zero    (d) Either positive or negative</p>
29.	<p>Which of the following can behave as a reducing agent?</p> <p>(a) <math>\text{Fe}(\eta^5\text{-C}_5\text{H}_5)(\text{CO})_3</math></p> <p>(b) <math>\text{Mn}(\eta^5\text{-C}_5\text{H}_5)(\text{CO})_3</math></p> <p>(c) <math>\text{Cr}(\eta^5\text{-C}_5\text{H}_5)(\text{CO})_3</math></p> <p>(d) <math>\text{Co}(\eta^5\text{-C}_5\text{H}_5)(\text{CO})_2</math></p>
30.	<p>A mixture of aqueous <math>\text{ZnCl}_2</math> and <math>\text{AlCl}_3</math> is treated with excess of concentrated sodium hydroxide solution. The result should be the formation of</p> <p>(a) <math>\text{Zn}(\text{OH})_2</math> precipitate</p> <p>(b) <math>\text{Al}(\text{OH})_3</math> precipitate</p> <p>(c) Both <math>\text{Zn}(\text{OH})_2</math> and <math>\text{Al}(\text{OH})_3</math> precipitates</p> <p>(d) Clear solution</p>
31.	<p>Metals A and B have same valence electron configuration and similar radii. Metal A crystallizes in HCP lattice while metal B forms a BCC lattice.</p> <p>(a) Metals A and B can form a superlattice</p> <p>(b) Metals A and B can form an interstitial alloy</p> <p>(c) Metals A and B can form a random substitution alloy over a limited range of composition</p> <p>(d) They can not form any alloy</p>

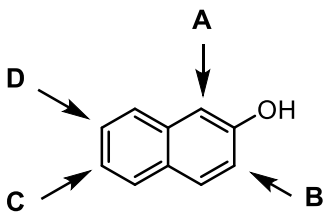
32.	Which of the following statements is true about iron and its alloys? (a) Cast iron is softer than pure iron (b) Steel is a substitutional alloy (c) The hardness of steel is due to the occupation of interstitial sites (d) Steel is harder than cast iron
33.	The lanthanide ions having a stable oxidation state other than +3 are (a) La, Gd (b) Er, Lu (c) Gd, Lu (d) Eu, Yb
34.	Which of the following isotopes are fissile but artificially produced? (a) $^{238}\text{U}$ , $^{239}\text{Pu}$ (b) $^{233}\text{U}$ , $^{238}\text{U}$ (c) $^{235}\text{U}$ , $^{238}\text{U}$ (d) $^{233}\text{U}$ , $^{239}\text{Pu}$
35.	Which of the following metal ions are involved at the active site of nitrogenase enzyme? (a) Zn, Cu (b) Mg, Fe (c) Fe, Mo (d) Mn, Co
36.	Which of the following is Wilkinson's catalyst? (a) $[\text{IrCO}(\text{PPh}_3)_3]$ (b) $[\text{RhCl}(\text{PPh}_3)_3]$ (c) $\text{Co}_2(\text{CO})_8$ (d) $\text{RuCl}_2(\text{PPh}_3)_4]$
37.	A sulphide ore is generally roasted to the oxide before reduction because (a) Enthalpy of formation of $\text{CO}_2$ is highly negative while that of $\text{CS}_2$ is positive (b) Metal sulphides are generally more stable than metal oxides (c) Sulphide ores can not be reduced at all (d) No reducing agent is found suitable for a sulphide ore
38.	Which of the following metals is the strongest reducing agent? (a) Cs (b) Ce (c) Cu (d) Cr
39.	The point symmetry of thiosulphate anion is (a) $\text{C}_1$ (b) $\text{C}_{2v}$ (c) $\text{C}_{3v}$ (d) $\text{T}_d$
40.	Aqueous ammonia is added to an aqueous solution containing chlorides of $\text{Ag}^+$ , $\text{Al}^{3+}$ , $\text{Fe}^{3+}$ , $\text{Cu}^{2+}$ and $\text{Ni}^{2+}$ to attain $\text{pH} \approx 10$ and the solution filtered. Which of these ions will go in solution in complexed form? (a) $\text{Ag}^+$ , $\text{Al}^{3+}$ , $\text{Fe}^{3+}$ (b) $\text{Cu}^{2+}$ , $\text{Ni}^{2+}$ , $\text{Ag}^+$ (c) $\text{Al}^{3+}$ , $\text{Fe}^{3+}$ , $\text{Cu}^{2+}$ (d) $\text{Fe}^{3+}$ , $\text{Cu}^{2+}$ , $\text{Ni}^{2+}$

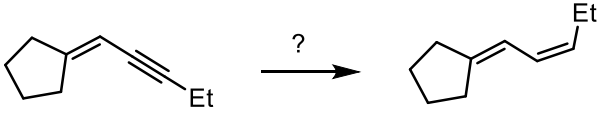
41.	Which of the following structures is most stable, with minimum potential energy?

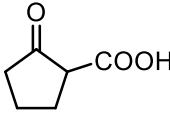
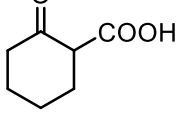

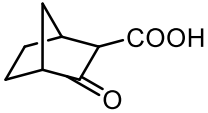
42.	How many structural isomers one can give for a compound with the formula of $C_2H_2F_4$ ? <b>A.</b> One; <b>B.</b> Two; <b>C.</b> Three; <b>D.</b> Four
43.	Which free radical is most stable? 
44.	How many chiral centres are present in the following compound? 
	<b>A.</b> Zero; <b>B.</b> One; <b>C.</b> Two; <b>D.</b> Three
45.	Which statement is correct for the following two compounds? 
A	The hydroxyl in both I and II is oriented in equatorial position, in its most stable conformation.
B	The hydroxyl in both I and II is oriented in axial position, in its most stable conformation.
C	The hydroxyl in I will be axial, while it is equatorial in II, in its most stable conformation.
D	The hydroxyl in I will be equatorial, while it is axial in II, in its most stable conformation.
46.	How many stereoisomers are possible for 2,4-hexadiene?
	<b>A.</b> Zero; <b>B.</b> Two; <b>C.</b> Three; <b>D.</b> Four
47.	Which order of reactivity is appropriate for the following compounds when treated with aqueous sodium hydroxide?
A	
B	
C	
D	

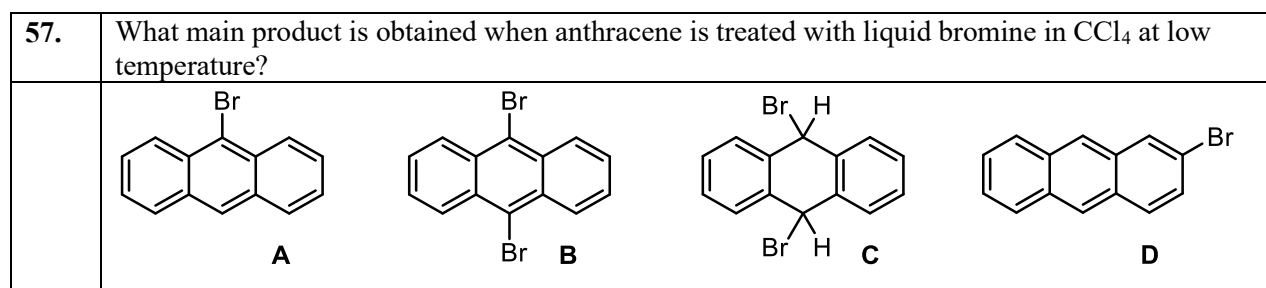
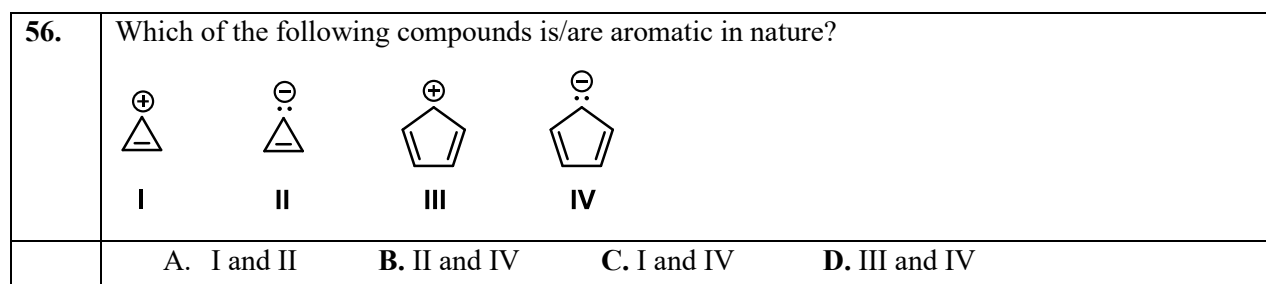
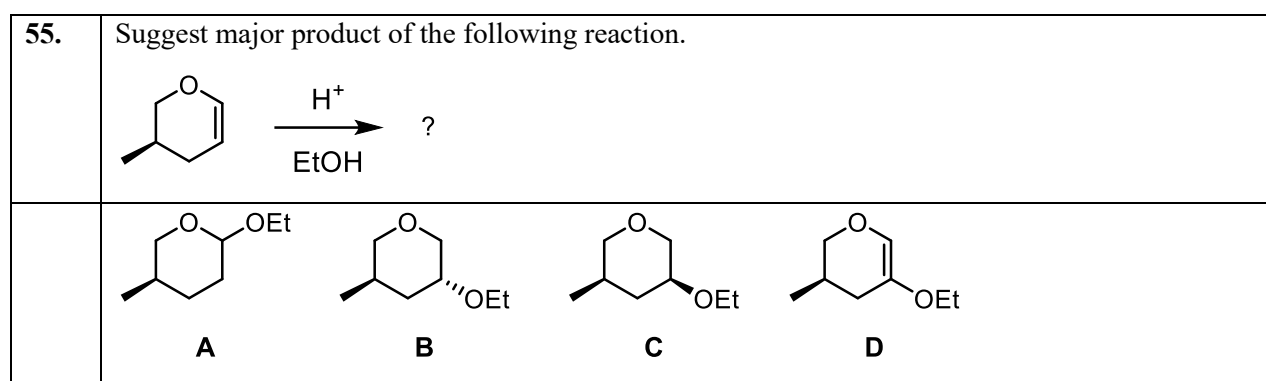
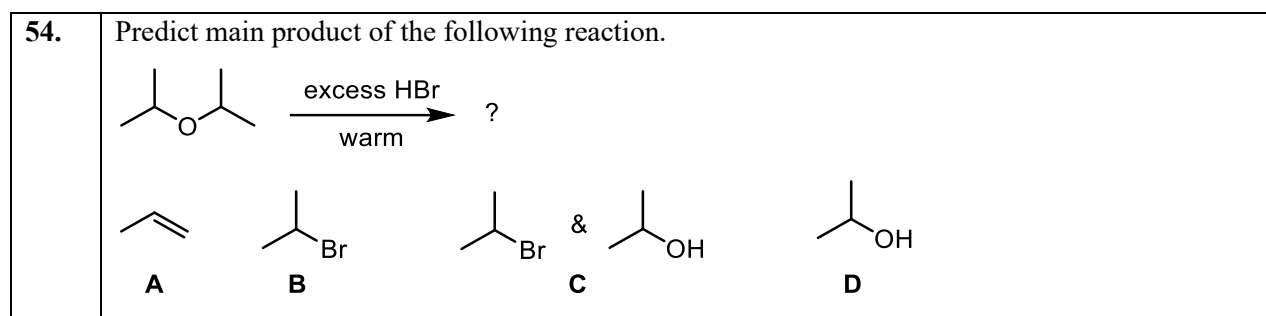
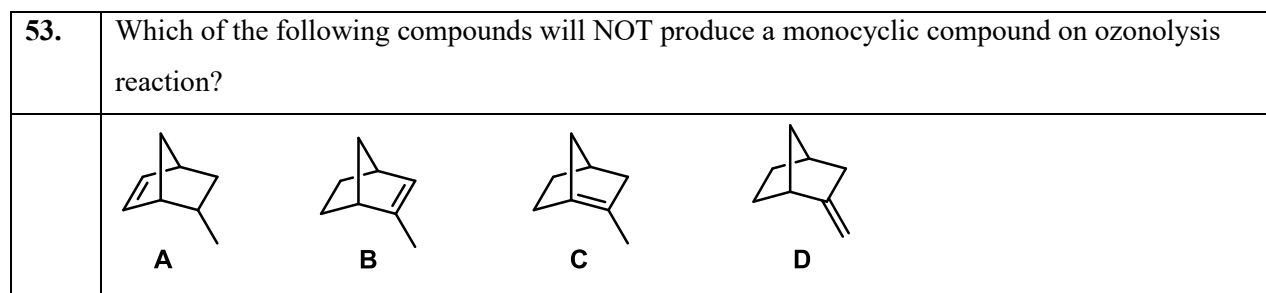
<b>48.</b>	Which of the following compounds will have highest boiling point?	
	$\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{OCH}_3$ <b>A</b>	$\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{Cl}$ <b>B</b>
	$\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{OH}$ <b>C</b>	$\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{NH}_2$ <b>D</b>

<b>49.</b>	What product is formed when the following halohydrin is treated with NaOH?			
				
	 <b>A</b>	 <b>B</b>	 <b>C</b>	 <b>D</b>

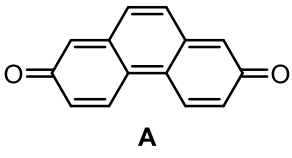
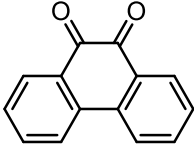
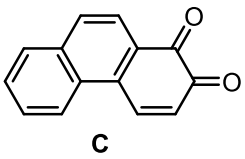
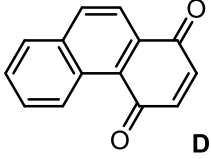
<b>50.</b>	Which position is most reactive for electrophilic substitution of 2-hydroxy naphthalene?
	

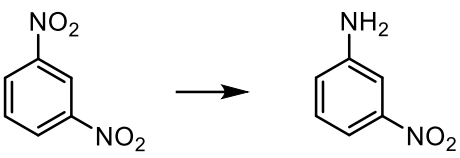
<b>51.</b>	Which is the most stable condition for the following conversion?
	
A	$\text{H}_2$ , 10% Pd-C (Catal.)
B	$\text{H}_2$ , 5% Rh-Alumina (Catal.)
C	$\text{LiAlH}_4$ , dry $\text{Et}_2\text{O}$
D	$\text{H}_2$ , Pd on $\text{BaSO}_4$ , 2% quinoline (Catal.)

<b>52.</b>	Which of the following compounds will NOT undergo decarboxylation?			
	 <b>A</b>	 <b>B</b>	 <b>C</b>	 <b>D</b>

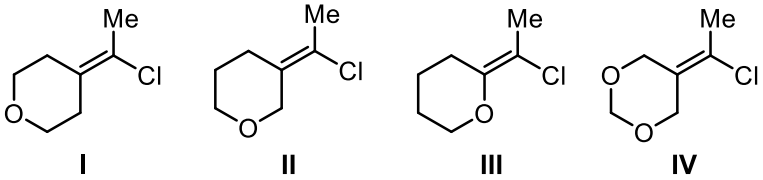


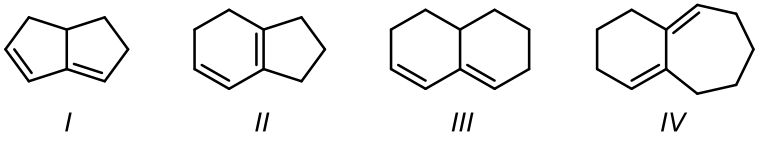


58.	What major product is obtained when phenanthrene is subjected to oxidation with $K_2Cr_2O_7$ in dilute sulfuric acid?
 <p style="text-align: center;"><b>A</b></p>	 <p style="text-align: center;"><b>B</b></p>
 <p style="text-align: center;"><b>C</b></p>	 <p style="text-align: center;"><b>D</b></p>

59.	Suggest appropriate reagent and condition for the following conversion. 
A	Sn (metal) and HCl
B	Zn-Hg, HCl
C	$H_2$ , Pd-C (Catal.)
D	$(NH_4)_2S$

60.	Some molecules show phosphorescence due to _____.
A	Singlet to triplet crossing
B	Singlet to ground state transition
C	Triplet to ground state transition
D	Ground state to triplet excitation

61.	Which of the following compounds can exist in two geometrical isomeric forms? 
	<b>A.</b> I and II <b>B.</b> II and III <b>C.</b> I and IV <b>D.</b> III and IV

62.	Which of the following compounds are examples of heteroannular dienes? 
	<b>A.</b> I and II; <b>B.</b> Only II; <b>C.</b> I, III and IV; <b>D.</b> II and IV

63.	Which carbohydrate is main component of "Table Sugar"?
	A. Sucrose      B. Maltose      C. Glucose      D. Lactose

64.	The Kiliani-Fischer synthesis involves _____.
A	Lengthening of chain length of carbohydrate.
B	Shortening of chain length of carbohydrate.
C	The number of carbons remains unchanged.
D	The number of carbons remains unchanged, but involves oxidation.

65.	Which of the following four isomers will react faster, when heated with NaOH to give 1,2-dimethylcyclohex-1-ene?

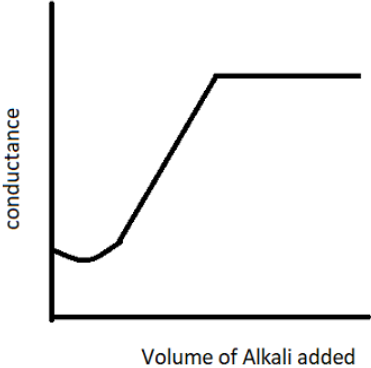
66.	What is the best way to distinguish methanol and ethanol in the laboratory?
A	By Iodoform Test
B	By Lucas Test
C	By Tollen's Reagent Test
D	Hinsberg Test

67.	What is the major product formed in the following reaction?

68.	In the following reaction, what change is observed in the IR stretching frequency of carbonyl group?
A	The stretching of cyclopentanecarboxylic acid ( $1790\text{ cm}^{-1}$ ) shifts to $1705\text{ cm}^{-1}$ in its acid chloride.
B	The stretching of cyclopentanecarboxylic acid ( $1715\text{ cm}^{-1}$ ) shifts to $1690\text{ cm}^{-1}$ in its acid chloride.
C	The stretching of cyclopentanecarboxylic acid ( $1735\text{ cm}^{-1}$ ) shifts to $1710\text{ cm}^{-1}$ in its acid chloride.
D	The stretching of cyclopentanecarboxylic acid ( $1705\text{ cm}^{-1}$ ) shifts to $1790\text{ cm}^{-1}$ in its acid chloride.



79.	Rate constant of a first order reaction is $0.0693 \text{ min}^{-1}$ . If we start with $20 \text{ mol/L}$ , it is reduced to $2.5 \text{ mol/L}$ in (a) 10 min                      (b) 20 min                      (c) 30 min                      (d) 40 min
80.	The effect of a catalyst in a chemical reaction is to change the (a) activation energy                      (b) equilibrium concentration (c) heat of reaction                      (d) Final product
81.	If the enthalpy change for the transition of liquid water to steam is $300 \text{ kJ mol}^{-1}$ at $27^\circ\text{C}$ , the entropy of change for the process would be (a) $1000 \text{ JK}^{-1}\text{mol}^{-1}$ (b) $10 \text{ JK}^{-1}\text{mol}^{-1}$ (c) $1.0 \text{ JK}^{-1}\text{mol}^{-1}$ (d) $0.1 \text{ JK}^{-1}\text{mol}^{-1}$
82.	Select the correct statement (a) Joule-Thomson effect is zero in an ideal gas (b) Joule-Thomson coefficient $\mu_{J-T} = \frac{1}{C_P} \left[ \frac{2a}{RT} - b \right]$ for a real gas (c) Both (a) and (b) (d) None of the above
83.	The efficiency of a Carnot's engine is 100% when (a) sink is placed at $0^\circ\text{C}$ (b) sink is placed at $0 \text{ K}$ (c) source is placed at $100^\circ\text{C}$ (d) source is placed at $400^\circ\text{C}$
84.	The following mathematical expression is equal to $\left( \frac{\partial U}{\partial V} \right)_S$ (a) -Temperature (b) -Pressure (c) -Gibbs free energy (d) -Enthalpy
85.	A system in equilibrium is described by the gaseous phase equation $\text{Heat} + \text{SO}_2\text{Cl}_2 \rightleftharpoons \text{SO}_2 + \text{Cl}_2$ Which of the following statement is true? (a) Addition of $\text{Cl}_2$ will shift the equilibrium towards right and temperature is raised (b) Addition of $\text{Cl}_2$ will shift the equilibrium towards left and temperature is raised (c) Addition of $\text{Cl}_2$ and $\text{SO}_2$ will shift the equilibrium towards left and temperature is raised (d) Addition of $\text{Cl}_2$ and $\text{SO}_2$ will shift the equilibrium towards left and temperature is lowered

86.	<p>The following graph represent the conductometric titration of</p>  <p>(a) Strong acid and strong base  (b) Strong acid and weak base  (c) Weak acid and strong base  (d) Weak acid and weak base</p>
87.	<p>A weak monoacid base has <math>\text{pH} = 10</math> at <math>0.01 \text{ M}</math>. % ionisation of base is  (a) <math>0.01 \%</math>    (b) <math>0.001 \%</math>    (c) <math>0.0001\%</math>    (d) <math>1.0 \%</math></p>
88.	<p>The standard reduction potentials of <math>\text{Cu}^{2+}/\text{Cu}</math> and <math>\text{Cu}^+/\text{Cu}</math> are <math>0.339\text{V}</math> and <math>0.518 \text{ V}</math>, respectively. The standard electrode potential of <math>\text{Cu}^{2+}/\text{Cu}^+</math> half cell is  (a) <math>0.16 \text{ V}</math>    (b) <math>-0.179 \text{ V}</math>    (c) <math>-0.16 \text{ V}</math>    (d) <math>+0.179 \text{ V}</math></p>
89.	<p>The chemical potential is partial molal quantity of ..... ( thermodynamics parameter)  (a) Entropy    (b) Helmholtz work function  (c) Gibbs free energy    (d) Internal energy</p>
90.	<p>A saturated solution of sodium chloride is a  (a) one phase system    (b) two phase system  (c) three phase system    (d) none of these</p>
91.	<p>Debye-Huckel theory predicts  (a) Variation of velocity constant with temperature  (b) Variation of equivalent conductance with concentration  (c) Variation of equivalent constant with Pressure  (d) None of the above</p>
92.	<p>Distribution law cannot be applicable for a system in which <math>\text{I}_2</math> is distributed in between  (a) Water and alcohol    (b) water and benzene  (c) water and chloroform    (d) water and diethyl ether</p>
93.	<p>When the solid compound AB and the liquid phase have identical composition at the maximum point on the freezing point curve, the corresponding temperature is said to be .....of the compound.  (a) eutectic point    (b) Congruent Melting Point  (c) isotactic point    (d) invariant point</p>

94.	In uranyl oxalate actinometer, the concentration of used up .....is a measure of the intensity of radiation. (a) $\text{KMnO}_4$ (b) uranyl oxalate      (c) iodine      (d) oxalic acid
95.	Stark-Einstein law states about ..... between reactant and product. (a) photochemical equivalence      (b) photochemical equilibrium (c) photochemical balance      (d) photochemical reversibility
96.	Which gas is adsorbed to the maximum extent on the given surface? (a) $\text{NH}_3$ (b) $\text{H}_2$ (c) $\text{N}_2$ (d) $\text{O}_2$
97.	Which of the following compounds shows both Frenkel and Schottky defects? (a) $\text{NaCl}$ (b) $\text{AgCl}$ (c) $\text{AgBr}$ (d) $\text{KCl}$
98.	Polymer obtained by condensation polymerization is (a) polyethene      (b) Teflon      (c) PVC      (d) phenol-formaldehyde resin
99.	The maximum work a system can perform is equal to the decrease in (a) Enthalpy change ( $\Delta H$ )      (b) Helmholtz work function change ( $\Delta A$ ) (c) Gibbs free energy change ( $\Delta G$ )      (d) none of these
100.	The salt bridge in the electrochemical cell serves to (a) increase the rate at which equilibrium is attained (b) increase the voltage of the cell (c) maintain electrical neutrality (d) increase the oxidation/reduction rate