Question Paper

Choose the **most appropriate answer** from the four options given.

1. Identify the chiral species among the following.

A   B   C   D

2. The achiral species among the following is:
       A) a ear
       B) a screw driver
       C) a screw
       D) a hand

3. Which one of the following compounds has (Z) configuration about the C-C double bond?

A   B   C   D

4. From the two pairs a) and b) of resonance structures given below, designate the ones that would contribute most to the resonance hybrid.

a)

I   II

b) $CH_2\text{-}\overset{..}{N}H(CH_3)_2$ ⟷ $CH_2\text{=}N(CH_3)_2$

III   IV

       A) I & III
       B) I & IV
       C) II & III
       D) II & IV

5. The order of the rate of formation of carbocations from the following iodo compounds is:

I   II   III

       A) I > II > III
       B) I > III > II
       C) III > II > I
       D) II > III > I
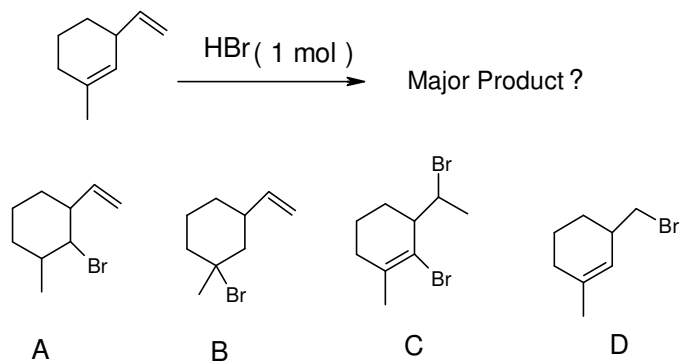
6. The $K_{eq.}$ values in HCN addition to following aldehydes are in the order:
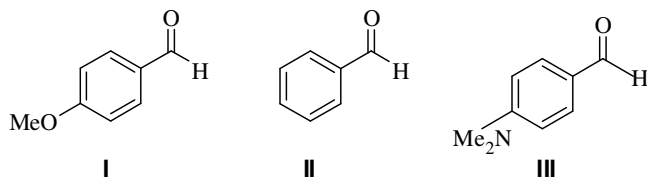
I   II   III
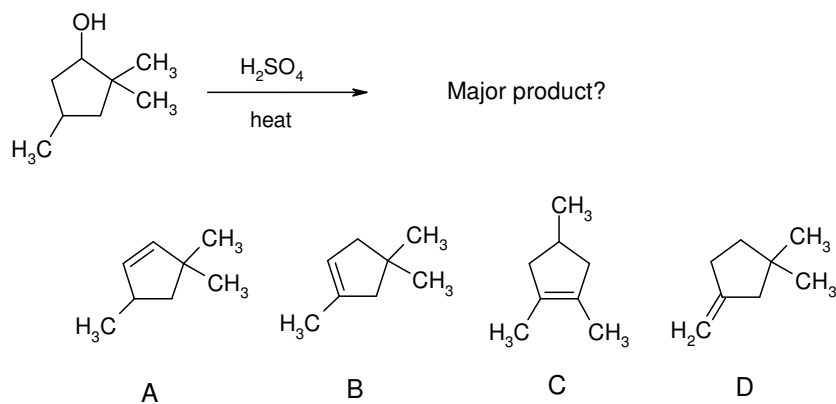
A) I > II > III
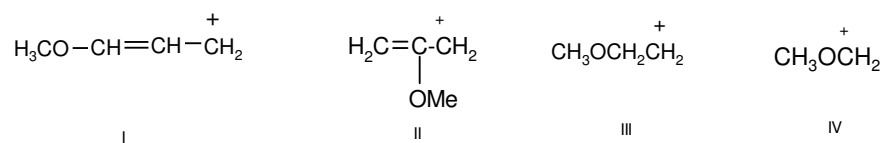B) II > III > I
C) III > I > II
D) II > I > III

7. The major product formed upon addition of 1 mole of HBr is

HBr (1 mol) → Major Product ?

A   B   C   D

8. The major product formed in the following reaction is:

H_2SO_4 / heat → Major product?

A   B   C   D

9. The relative stabilities of the following carbocations is:

$H_3CO-CH=CH-\overset{+}{C}H_2$ $H_2C=\overset{+}{C}-CH_2$ $CH_3O\overset{+}{C}H_2CH_2$ $CH_3O\overset{+}{C}H_2$

                         OMe

I   II   III   IV

A) I > II > III > IV
B) I > IV > II > III
C) II > III > IV > I

D) III > I > II > IV

10. The FIRST Nobel Prize in Chemistry was awarded to which one of the following scientists for his work on rates of reactions, chemical equilibrium and osmotic pressure.
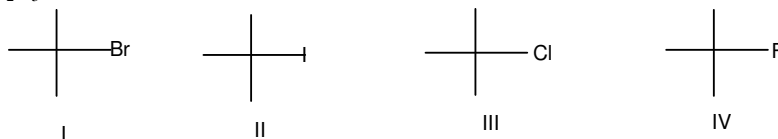
        A) Arrhenius
        B) van't Hoff
        C) Emil Fischer
        D) Ramsay

11. Indicate the correct order of acidity (first ionization) in the following dicarboxylic acids:
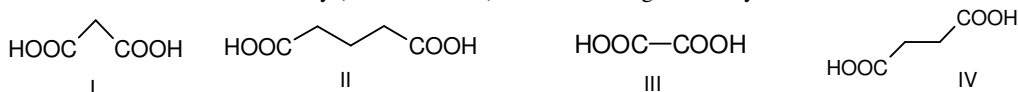
        A) I>II>III>IV
        B) II>IV>I>III
        C) III>I>IV>II
        D) IV>II>I>III

12. Arrange the following compounds in order of decreasing reactivity in the elimination (bimolecular) reaction with C_2H_5ONa.

        A) II>I>III>IV
        B) IV>III>I>II
        C) III>I>II>IV
        D) I>III>IV>II

13. Indicate the order of reactivity of the following compounds in nucleophilic substitution (unimolecular) reaction.
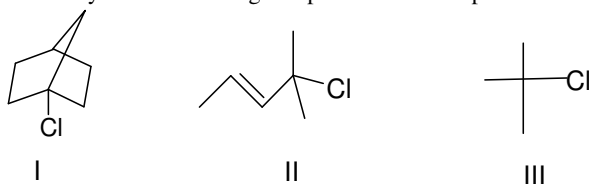
        A) I>II>III
        B) II>III>I
        C) III>II>I
        D) II>I>III

14. Identify the ester which upon addition of excess Grignard's reagent will provide a secondary alcohol.
   A) CH_3CO_2Et
        B) $(CH_3)_2CHCO_2Et$
        C) HCO_2Et
        D) $C_6H_5CO_2Et$

15. Repeating isoprene units are present in
        A) alkaloids
        B) peptides
        C) nucleic acids
        D) terpenoids

16. The C-C-H bond angle in ethylene is
    A) 180°
    B) 109°28'
    C) 120°
    D) 90°

17. The following symmetry element **is** present in the d as well as the l form of tartaric acid
    ($CO_2HCH(OH)CH(OH)CO_2H$
    A) centre of symmetry
    B) axis of symmetry (C_2)
    C) plane of symmetry
    D) none

18. The carbocation $(CH_3)_3C^+$ is stabilized primarily by
    A) hyperconjugation
    B) tautomerism
    C) resonance
    D) conjugation
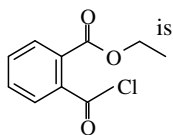
19. Predict the product formed in the following reaction

Product

$AlCl_3$

A   B   C   D
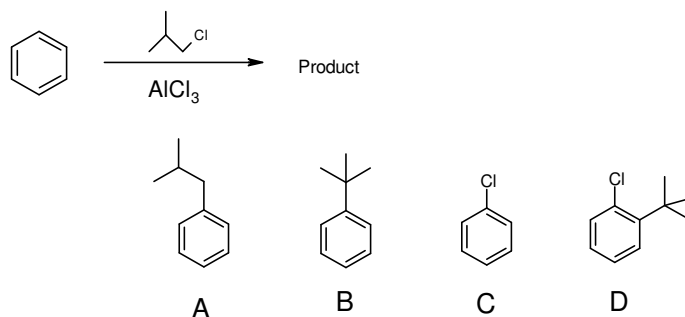
20. Identify the odd species out (Which of the species among the following is different from others?)

A   B   C   D
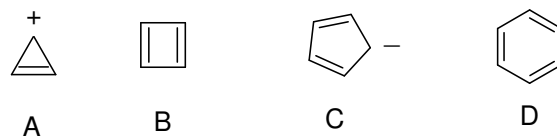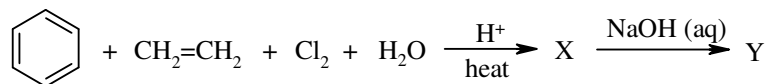
21. The IUPAC name of

is
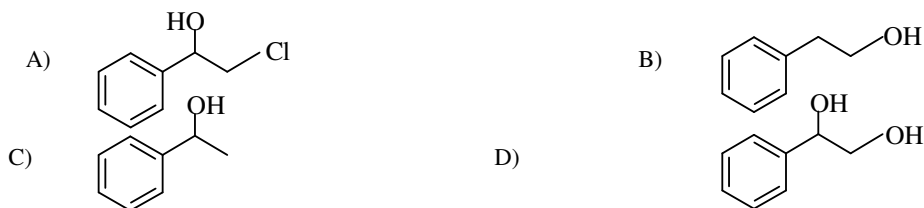
    A) 2-Chlorocarbonylethylbenzoate
    B) 2-Carboxyethylbenzoylchloride
    C) Ethyl- 2-(chlorocarbonyl)benzoate
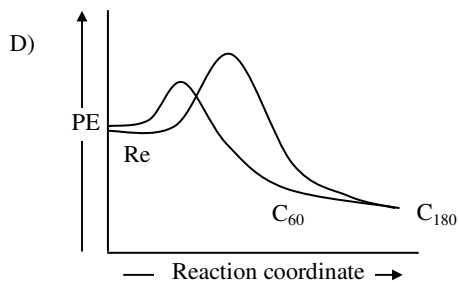   D) Ethyl-1-(chlorocarbonyl) benzoate
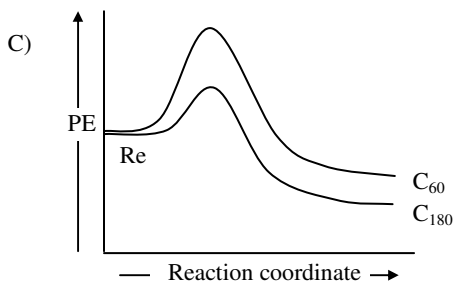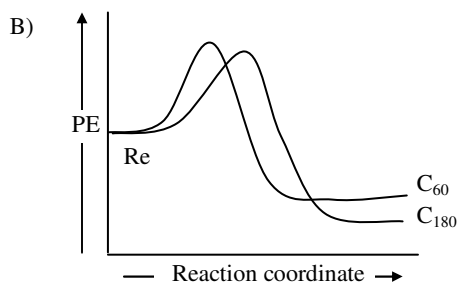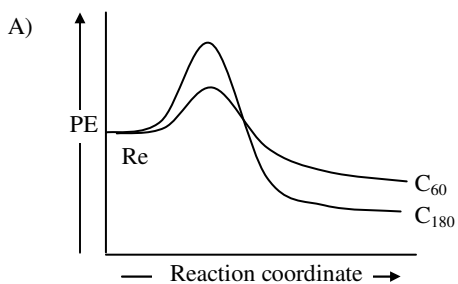
22. Consider the following reactions

$$\text{benzene} + CH_2{=}CH_2 + Cl_2 + H_2O \xrightarrow[\text{heat}]{H^+} X \xrightarrow{\text{NaOH (aq)}} Y$$

The major product (Y) of the reaction is:

A) (structure: HO and Cl substituents on chain attached to benzene ring)

B) (benzene–CH$_2$CH$_2$–OH)

C) (benzene with OH on CH–CH$_3$)

D) (benzene with OH and CH$_2$OH)

23. Fullerenes are generated on a very rapid scale typically in milliseconds. In all techniques, C_{60} is produced in much greater quantities than C_{180} though latter is more stable. Which of the following graph represents the following two processes?
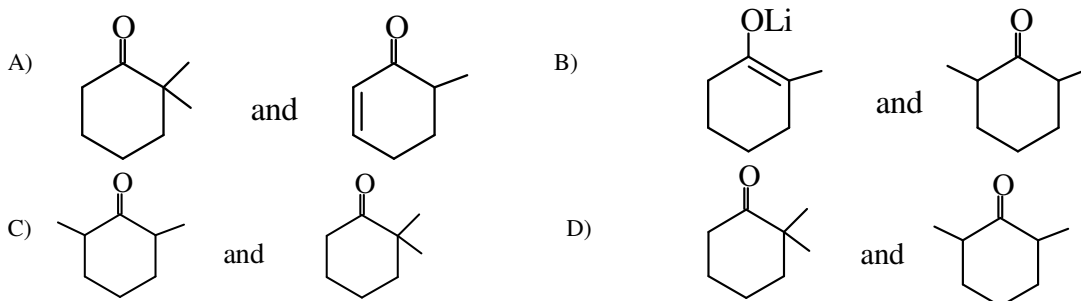
(i) Reactant (Re) $\rightleftharpoons$ $3C_{60}$

(ii) Reactants (Re) $\rightleftharpoons$ C_{180}

A)

B)

C)

D)

24. Consider the following reactions

$$M \xleftarrow{CH_3I} L \xleftarrow[273\ K]{LDA} \text{(2-methylcyclohexanone)} \xrightarrow[298\ K]{NaH} X \xrightarrow{CH_3I} Y \qquad (\text{LDA} = \text{lithiumdiisopropyl amide})$$
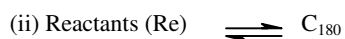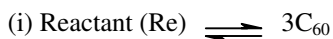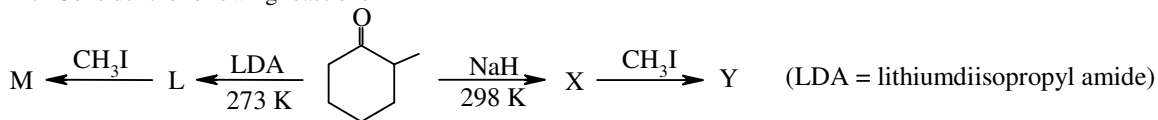
The products M and Y respectively are

A) and

B) and

C) and

D) and

6

25. What is the major product obtained from the following reaction?

$$HO-CH_2-\overset{\overset{O}{\|}}{C}-OH \xrightarrow{SOCl_2} \xrightarrow{CH_3OH}$$
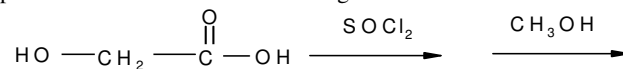
A) $HOCH_2COOCH_3$

B) $CH_3OCH_2COOCH_3$

C) $ClCH_2COOCH_3$

D) CH_3OCH_2COOH

26. What is the major product obtained from the following reaction?

$$CH_3COCH_2COOH \xrightarrow{heat} Product$$

A) $CH_3CHO + CH_3COOH$

B) CH_3COCH_3

C) $CH_3-\overset{\overset{OH}{|}}{C}=CH2$

D)
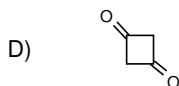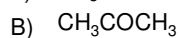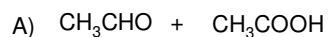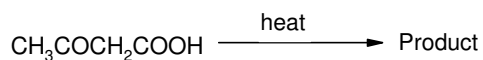
27. The correct order of acidity of the C-H proton is -
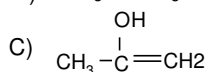   A) acetylene > ethylene > ethane
   B) ethylene > acetylene > ethane
   C) ethane > ethylene > acetylene
   D) acetylene > ethane > ethylene

28. In the petroleum industry, crude oil is separated into different fractions by
   A) differential extraction
   B) fractional distillation
   C) chromatography
   D) leaching

29. The percentage of oxygen in a compound is determined by
   A) Dumas method
   B) Kjeldahl's method
   C) Carius method
   D) subtracting the sum of percentages of all other elements present from 100.

30. Conformational changes in a molecule leads to change in
   A) torsional angle
   B) bond angle
   C) bond length
   D) all of the above

31. A qualitative analysis of papaverine, an opium alkaloid showed carbon, hydrogen and nitrogen. A quantitative analysis gave 70.8% carbon, 6.2% hydrogen and 4.1% nitrogen. The empirical formula of papaverine is:
   A) $C_{20}H_{20}N_2$
   B) $C_{20}H_{21}O_4N$
   C) $C_{10}H_{11}O_3N$
   D) $C_{21}H_{20}N$

32. Vision, the process of seeing, depends mainly on one reaction, namely the transformation of –
   A) rods cells into cone cells in the eye
   B) β-Carotene into retinol
   C) 11-cis-retinal into 11-trans-retinal
   D) 7-cis-retinol into 7-trans-retinal

33. Ethyl propanoate has a pineapple like odour and is used as a flavoring agent in fruit syrups. It is prepared as follows:

$$C_2H_5OH_{(aq)} + C_5H_5COOH_{(aq)} \longrightarrow C_2H_5COOC_2H_{5 (aq)} + H_2O_{(l)}$$
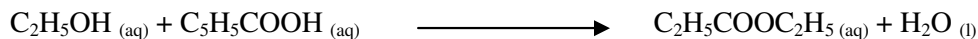
   In an experiment, 349 grams of ethyl propanoate was obtained from 250grams of ethanol, with propanoic acid in excess.
   (M.W. of ethyl propanoate: 102, M.W. of ethanol: 46)

   The percentage yield of the above reaction is:

   A)   48.2

   B)   62.9
   C)   54.6
   D)   32.7

34. In which of the following compounds is the oxidation number of the transition metal zero?
   A) $[Ni(CO)_4]$
   B) $[Pt(C_2H_4)Cl_3]$
   C) $[Co(NH_3)_6]Cl_2$
   D) $[Fe(H_2O)_3](OH)_2$

35. As the number of electrons in d orbitals of transition elements increases , the screening effect on the valence electrons-
   A) increases
   B) decreases greatly
   C) is not observed
   D) decreases slightly

36. $[NiCl_4]^{2-}$ is paramagnetic and therefore its geometry is:
   A) pyramidal
   B) bi-pyramidal
   C) tetrahedral
   D) square planar

37. The magnetic moment of $MnSO_4.4H_2O$ is:
   A) 1.73 BM
   B) 3.87 BM
   C) 4.90 BM
   D) 5.92 BM

38. dsp^2 hybridization represents
   A) octahedral geometry
   B) square-planar geometry
   C) trigonal-bipyramidal geometry
   D) square-pyramidal geometry

39. Which type of bond exists between the two boron atoms in a diborane molecule ?
    A) 2-Center-2-electron
    B) 2-Center-3-electron
    C) 3-Center-3-electron
    D) 4-Center-4-electron

40. Which isomerism is exhibited by $[Co(NH_3)_6][Cr(CN)_6]$ and $[Cr(NH_3)_6][Co(CN)_6]$?
    A) Ionization
    B) Linkage
    C) Coordination
    D) Polymerization

41. The complex pentaaminecarbonatocobalt(III)chloride is
    A) $[Co(NH_3)_5CO_3]Cl$
    B) $[Co(NH_2)_5CO_3]Cl$
    C) $[Co(NH_2)_5CO_2]Cl$
    D) $[Co(NH_3)_5CO_2]Cl$

42. According to Molecular Orbital Theory, the oxygen molecule is-
    A) Diamagnetic
    B) Paramagnetic
    C) Ferromagnetic
    D) non magnetic

43. Which of the following has zero dipole moment?
    A) NH_3
    B) NF_3
    C) BF_3
    D) $CHCl_3$

44. Thallium forms stable chloride, TlCl, unlike Aluminum which forms chloride $AlCl_3$. This is because:
    A) inert pair effect makes Tl^+ more stable than Tl^{3+}.
    B) Tl is not a group 13 element.
    C) Tl-X bond is covalent while Al-Cl bond is ionic.
    D) Tl-X bond is ionic while Al-Cl bond is covalent.

45. 12. Which two of the following reactions are possible?
    i) $2FeCl_3 + SnCl_2 \rightarrow 2FeCl_2 + SnCl_4$
    ii) $2FeCl_2 + SnCl_4 \rightarrow 2FeCl_3 + SnCl_2$
    iii) $PbCl_2 + SnCl_4 \rightarrow SnCl_2 + PbCl_4$
    iv) $SnCl_2 + PbCl_4 \rightarrow PbCl_2 + SnCl_4$
    A) i and ii
    B) i and iii
    C) i and iv
    D) ii and iv

46. Silicones are water repelling in nature because-
    A) they have highly covalent Si-O-Si linkages.
    B) they have organic groups forming hydrophobic exterior. √
    C) they are polymeric in nature.
    D) they have Si-H bonds as in hydrocarbons.

47. Which of the following compounds is most basic in nature?
    A) $Si(OH)_4$
    B) $Al(OH)_3$
    C) $Mg(OH)_2$
    D) $P(OH)_3$

48. Aqueous solutions having equimolar quantities of $Pb(NO_3)_2$, $AgNO_3$, $AgSO_4$, $BaCl_2$ and K_2CrO_4 are allowed to react and the reaction mixture is then filtered. Which ions will be present in the filtrate in appreciable quantity?

A) Pb^{2+}, Ag^+, Ba^{2+}, K^+, NO_3^-, SO_4^{2-}, CrO_4^{2-}, Cl^-
B) Ba^{2+}, K^+, NO_3^-, CrO_4^{2-}
C) Pb^{2+}, Ba^{2+}, K^+, NO_3^-, CrO_4^{2-}
D) K^+, NO_3^-

49. Concentrated sulphuric acid on reaction with NaCl, NaBr and NaI produces HCl, bromine and iodine, respectively. What order of oxidizing ability of halogens with reference to sulphuric acid can be established on the basis of this reaction?
A) $H_2SO_4 > I_2 > Br_2 > Cl_2$
B) $Cl_2 > H_2SO_4 > Br_2 > I_2$
C) $H_2SO_4 > Cl_2 > Br_2 > I_2$
D) $Cl_2 > Br_2 > I_2 > H_2SO_4$

50. According to the Crystal Field Theory, the energy of d_{xy} orbital is lower than d_{x2-y2} in an octahedral complex because
A) the d_{xy} orbital is near the ligands.
B) the repulsion between the d_{xy} electrons and ligand electrons is less than that between d_{x2-y2} and ligand electrons.
C) the repulsion between the d_{xy} electrons and ligand electrons is more than that between d_{x2-y2} and ligand electrons.
D) the d_{x2-y2} orbital is away from the ligands.

51. The orbitals of iron involved in the hybridization in $Fe(CO)_5$ are
A) s, p_x, p_y, p_z and d_{x2-y2}
B) s, p_x, p_y, d_{z2} and d_{x2-y2}
C) s, p_x, p_y, p_z and d_{z2}
D) s, p_x, p_z, d_{xy} and d_{x2-y2}

52. The crystal field stabilization energy (CFSE) in $[Co(SCN)_6]^{3-}$ is
A) -24 Dq
B) -18 Dq
C) -4 Dq
D 0 Dq

53. Element having (4,0,0,+½)as a set of four quantum numbers for its valence electron is-
A) Na
B) Ca
C) K
D) Br

54. What is the correct order of stability of the complexes, $[Ni(NH_3)_6]^{2+}$, $[Ni(en)_3]^{2+}$, $[Ni(DET)_2]^{2+}$?
[en = 1,2 diaminoethane, $H_2NCH_2CH_2NH_2$;
DET= Diethylenetriamine, $H_2NCH_2CH_2NHCH_2CH_2NH_2$]

A) $Ni(NH_3)_6]^{2+} \approx [Ni(en)_3]^{2+} \approx [Ni(DET)_2]^{2+}$
B) $Ni(NH_3)_6]^{2+} < [Ni(en)_3]^{2+} \approx [Ni(DET)_2]^{2+}$
C) $Ni(NH_3)_6]^{2+} < [Ni(en)_3]^{2+} < [Ni(DET)_2]^{2+}$
D) $Ni(NH_3)_6]^{2+} > [Ni(en)_3]^{2+} > [Ni(DET)_2]^{2+}$

55. How many isomers are possible for a compound with formula, $[Rh(en)Cl(NO_2)]$?
A) 2
B) 4
C) 6
D) 8

56. Metal carbonyls have the metal ions in zero or unusually lower oxidation states. This is because
A) carbonyl ligand is reducing in nature.
B) carbonyl is a highly electron rich ligand.
C) carbonyl is a strongly σ-bonding ligand.
D) carbonyl is a strongly π-acidic ligand.

57. Europium forms stable Eu^{2+} ions because
    A) Europium is a lanthanide.
    B) 2^+ is the common oxidation state of lanthanides.
    C) Eu^{2+} has f^7 valence electronic configuration.
    D) All of the above reasons.

58. Which of the following molecules contains the maximum % of sulfur by mass?
    A) Na_2SO_4
    B) H_2SO_4
    C) Li_2SO_4
    D $PbSO_4$

59. 17.1 grams of aluminum sulfate, $Al_2(SO_4)_3$ is dissolved in enough water to prepare 1.00 L of solution. What is the molarity of the sulfate ion in this solution? (Neglect any hydrolysis)
    A) 1.67×10^{-2} M
    B) 5.00×10^{-2} M
    C) 1.50×10^{-1} M
    D) 2.50×10^{-1} M

60. Calculate the pH of a solution made by mixing 150 cm^3 of 0.10 M CH_3COONa and   250 cm^3 of   0.10   M CH_3COOH
$$[K_a \text{ of } CH_3COOH = 1.8 \times 10^{-5}]$$
    A) 2.37
    B) 4.52
    C) 4.74
    D) 4.97

61. The solubility product constant, K_{sp}, of Ag_3PO_4 is 1.8×10^{-18}. What is the molar solubility of Ag_3PO_4 in water? (Neglect any hydrolysis.)
    A) 1.6×10^{-5}
    B) 8.4×10^{-7}
    C) 1.3×10^{-9}
    D) 4.5×10^{-19}

62. Chlorine can be prepared by reacting HCl with MnO_2. The reaction is represented by the equation:
$$MnO_2(s) + 4HCl_{(aq)} \rightarrow Cl_{2(g)} + MnCl_{2(aq)} + 2H_2O_{(l)}$$

Assuming the reaction goes to completion, what mass of concentrated HCl solution (36.0% HCl by mass) is needed to produce 2.50 g of Cl_2?
    A) 5.15 g
    B) 14.3 g
    C) 19.4 g
    D) 26.4 g

63. In the unit cell of the crystal formed by the ionic compound of X and Y, the corners are occupied by X and the centers of the faces by Y. The empirical formula of the compound is:
    A) XY
    B) X_2Y
    C) XY_3
    D) X_8Y_6

64. Which of the following pairs is a Lewis acid & a Lewis base?
    A) Cl^- & Ag^+,
    B) NH_3 & BF_3
    C) SO_4^{-2} & HSO_4^-
    D) H^+ & OH^-

65. In which of the following reactions will an increase in volume of the reaction system favor the formation of the products?

$$A)\ C_{(s)} + H_2O_{(g)} \rightleftharpoons CO_{(g)} + H_{2\,(g)}$$

$$B)\ H_{2\,(g)} + I_{2\,(g)} \rightleftharpoons 2HI_{(g)}$$

$$C)\ 4NH_{3\,(g)} + 5O_{2\,(g)} \rightleftharpoons 4NO_{(g)} + 6H_2O_{(l)}$$

$$D)\ 3O_{2\,(g)} \rightleftharpoons 2O_{3\,(g)}$$

66. What is the total pressure inside a 2L vessel containing 1g of He, 14g of CO and 10g of NO at 27^0C?
     A) 0.25 atm,
     B) 13.2 atm,
     C) 1.24 atm,
     D) 21.6 atm

67. Assuming a Lewis structure for SO_2 in which all the atoms obey the octet rule, the formal charge on S is:
     A) +1
     B) 0
     C) +2
     D) -2

68. Which of the following will have the slowest rate of reaction with HCl?
     A) Marble chips at 40^0 C
     B) Powdered marble at 25^0C,
     C) Marble chips at 25^0C,
     D) Powdered marble at 40^0 C.

69. How many moles of Na^+ ions are there in 20mL of 0.40M solution of Na_3PO_4?
     A) 0.008
     B) 0.020
     C) 0.024
     D) 0.008

70. The solubility of a gas in a liquid is directly proportional to the partial pressure of the gas over the solution. This statement is known as:
     A) Raoult's law
     B) Henry's law
     C) Boyle's law
     D) Charles' and Gay Lussac's law

71. How many sigma bonds and pi bonds are present in $CH_2=C=CH_2$?
     A) 6 sigma and 1 pi
     B) 8 sigma and 0 pi
     C) 4 sigma and 4 pi
     D) 6 sigma and 2 pi

72. A first-order reaction has a rate constant of $0.003\ s^{-1}$. The time required for completion of 75% reaction is
     A) 231 s
     B) 201 s
     C) 41.7 s
     D) 462 s

73. The activation energy of a reaction is given by
     A) –R /(slope of a plot of ln k vs. 1/T)
     B) –(slope of a plot of ln k vs. 1/T)/R
     C) –(slope of a plot of ln k vs. 1/T) x R
     D) +(slope of a plot of ln k vs. 1/T) x R

74. Viscosity is a measure of resistance of a liquid to flow and viscosity-
   A) decreases with increasing temperature
   B) increases with increasing temperature.
   C) remains constant with temperature
   D) shows linear relation (with positive slope) with temperature.

75. Which of the following is not a colligative property?
   A) solubility.
   B) vapor pressure lowering.
   C) boiling point elevation.
   D) osmotic pressure.

76. Which of the following has the lowest freezing point and the highest boiling point?
   A) 1.5 m magnesium phosphate
   B) 1.0 m sodium chloride
   C) 1.5 m aluminum nitrate
   D) 1.5 m calcium chloride

77. Which of the following changes the value of the equilibrium constant?
   A) change in concentration
   B) change in pressure
   C) change in volume
   D) none of these

78. The change in free energy accompanied by the isothermal reversible expansion of 1 mol of an ideal gas when it doubles its volume is ΔG_1. The change in free energy accompanied by sudden isothermal irreversible doubling of volume of 1 mol of the same gas is ΔG_2. Ratio of ΔG_1 to ΔG_2 is
   A) 1
   B) $\dfrac{1}{2}$
   C) -1
   D) $-\dfrac{1}{2}$

79. By observing the reaction between gases A and B, the following data was obtained:

[A] mol L^{-1}	[B] mol L^{-1}	Initial rate mol L^{-1} s^{-1}
2.16×10^{-5}	1×10^{-5}	1×10^{-8}
2.14×10^{-5}	2.01×10^{-6}	2×10^{-9}
2.18×10^{-5}	3.2×10^{-5}	3.25×10^{-8}
4.31×10^{-5}	1.1×10^{-6}	4.3×10^{-9}
8.60×10^{-5}	2.1×10^{-5}	3.3×10^{-8}

The reaction orders with respect to A and B respectively are:
   A) 1 and 2
   B) 0 and 2
   C) 2 and 1
   D) both are 1

80. If each of the following salts has $K_{sp} = 1 \times 10^{-9}$, which of them is the least soluble in water?
   A) XY
   B) XY_2
   C) X_2Y
   D) X_3Y

81. The pH of a 0.01 M solution of ammonium acetate can be changed by changing
   A) the temperature
   B) the volume of solution
   C) the concentration
   D) the pressure on solution

82. Which of the following represents the true order of dissociation energy of the indicated C − H bond of the following molecules?
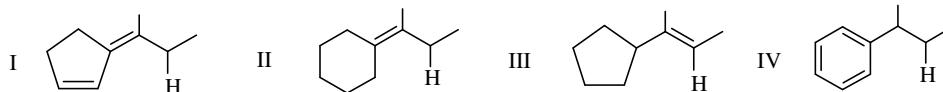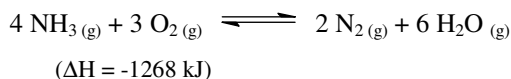

A) I < II < IV < III
B) III < IV < II < I
C) IV < II < I < III
D) III < IV < II < I

83. For a reaction of the nth order, the time required for half reaction is inversely proportional to

A) a^n
B) $a^{(n-1)}$
C) $a^{(n+1)}$
D) $\sqrt{a}$

84. Consider the equilibrium reaction:

$$4\ NH_{3\ (g)} + 3\ O_{2\ (g)} \rightleftharpoons 2\ N_{2\ (g)} + 6\ H_2O_{\ (g)}$$

$$(\Delta H = \text{-}1268\ kJ)$$

Which change will cause the reaction to shift to the right?

A) Increase the temperature
B) Decrease the volume of the container.
C) Add a catalyst to speed up the reaction.
D) Remove the gaseous water by allowing it to react and be absorbed by   KOH.

85. The heat of combustion of glucose is -2840kJ. Therefore the energy required for the **production** of 0.18 g of glucose is:

A) -5.68 kJ
B) +5.68 kJ
C) -2.84 kJ
D) +2.84 kJ

86. For the reaction shown below, which statement is true?

$$2Fe + 3\ CdCl_2 \rightleftharpoons 2\ FeCl_3 + 3Cd$$
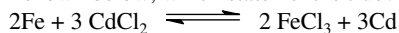
A) Fe is the oxidizing agent
B) Cd undergoes oxidation
C) Cd is the reducing agent
D) Fe undergoes oxidation

87. The voltage for the cell: Fe / Fe^{2+} (0.001 M) // Cu^{2+}(0.10 M) / Cu is 0.807 V at 25 °C. What is the value of E°?

A) 0.629 V
B) 0.689 V
C) 0.748 V
D) 0.866 V

88. A current of 2.0 A is used to plate Ni(s) from 500mL of a 1.0 M Ni^{2+}aqueous solution. What is the [Ni^{2+}] after 3.0 hours?

A) 0.39 M
B) 0.46 M
C) 0.78 M
D) 0.89 M

89. The number of amino acid residue of a polypeptide with molecular weight 55 kD may be

A) 110
B) 240
C) 500
D) 550

90. Titration of the amino acid lysine has three pK values viz., pK_{a1} (2.18), pK_{a2} (8.95) and pK_{a3} (10.53). The pH at which this amino acid will show no net migration in an electric field is
    A) 5.57
    B) 9.74
    C) 6.35
    D) 7.22

91. Increase in cell membrane fluidity with increasing temperature is due to change in the structure of
    A) protein
    B) lipid
    C) polysaccharide
    D) DNA

92. Proteins present inside the cell membrane are stabilized by
    A) hydrogen bond
    B) disulfide bond
    C) hydrophobic force
    D) phospho-diester bond

93. Synthesis of amino acids that will be affected due to prolonged uptake of food with no sulfur content is:
    A) lysine
    B) tyrosine
    C) aspartic acid
    D) cysteine

94. Q.7. Presence of higher number of GC pairs in a DNA molecule makes it more stable at
    A) high temperature
    B) low temperature
    C) high pH
    D) high salt concentration

95. A polypeptide chain with 60 amino acids residue will have _____ number of nucleotides in its DNA?
    A) 60
    B) 120
    C) 180
    D) 360

96. Electrophoretic mobility (without change in primary structure) of a multi-subunit protein sample with interchain disulfide bond will be affected if it is treated with
    A) performic acid
    B) trypsin
    C) NaCl
    D) CNBr

97. The molecule that cannot undergo esterification reaction is
    A) hemoglobin
    B) adenine
    C) fatty acid
    D) glycogen

98. Normally carbohydrates are not present as a part of _____ molecule in the cell.
    A) lipid
    B) protein
    C) DNA
    D) vitamin

99. The molecule that shows increase in absorbance in the UV region with increasing temperature is
    A) DNA
    B) RNA
    C) protein
    D) chlorophyll

100. Proteins undergo degradation during starvation to act as a carbon source. The final byproduct of this reaction is

A) glucose
B) ammonia
C) ATP
D) amino acid

Answer Sheet

1	A	21	C	41	A	61	A	81	A
2	B	22	C	42	B	62	B	82	A
3	B	23	A	43	C	63	C	83	B
4	D	24	C	44	A	64	D	84	D
5	C	25	C	45	D	65	A	85	D
6	D	26	B	46	B	66	B	86	D
7	B	27	A	47	C	67	A	87	C
8	C	28	B	48	D	68	C	88	C
9	B	29	D	49	B	69	C	89	C
10	B	30	A	50	B	70	B	90	B
11	C	31	B	51	C	71	D	91	B
12	A	32	C	52	A	72	D	92	C
13	B	33	B	53	C	73	C	93	D
14	C	34	A	54	C	74	A	94	A
15	D	35	A	55	C	75	A	95	D
16	C	36	C	56	D	76	A	96	A
17	D	37	D	57	C	77	D	97	B
18	A	38	B	58	B	78	A	98	D
19	B	39	B	59	C	79	C	99	A
20	B	40	C	60	B	80	D	100	B