MCQ 2019-20

CHEMISTRY
CLASS - XI (SCIENCE)

Important Instructions:

1. The Answer Sheet in inside this Test Booklet. When you are directed to open the Test Booklet, take out the Answer Sheet and fill in the particulars with blue/black pen only.
2. The test of 3.15 hours duration and Test Booklet, contain 120 question. Each question carries 4 mark. For each correct response, the candidate will get 4 marks. For each incorrect response, 1 mark will be deducted from the total scors. The maximum Marks are 480.
4. Use only blue/black ball point pen to write particulars on this page/ marking response.
5. Rough work to be done on the space provided for this purpose in the Test Booklet only.
6. On completion of test the candidates must handover the Answer Sheet to the invigilator before leaving the room. The candidate are allowed to carry away this Test Booklet with them.
7. The candidate should ensure that the Answer Sheet is not folded. Do not make any stray mark on Answer Sheet. Do not write your Roll No. Anywhere else expect in the specified space in the Test Booklet/ Answer Sheet.
8. Use of White fluid for correction is Not permissible on the Answer Sheet.
9. Black Paper, clipboards, log tables, calculators, mobile or any electronics storage device is NOT permissible in the examination room.

Test Duration : 3.15 Hours   **Date : _____**

Name of Candidate (in Capitals) : _____

Roll Number (in Figures) : _____

Roll Number (in Words) : _____

Candidate's Signature : _____ **Invigilator's Signature** _____

1. Which compound has electrovalent bond
   (A) H_2O_2 (B) CCl_4
   (C) $NaBr$ (D) $CHCl_3$

2. Which type of bonding exists in Li_2O and CaF_2 respectively
   (A) Ionic, ionic   (B) Ionic, convalent
   (C) Covalent, ionic   (D) Coordinate, ionic

3. When NaCl is dissolved in water, the sodium ion becomes
   (A) Oxidized   (B) Reduced
   (C) Hydrolysed   (D) Hydrated

4. Which of the following molecules has trigonal planner geometry
   (A) IF_3 (B) PCl_3
   (C) NH_3 (D) BF_3

5. Pentagonal bipyramidal structure contains bond angles approximately
   (A) 120º, 90º, 180º   (B) 120º, 72º, 180º
   (C) 72º, 90º, 120º   (D) 72º, 90º, 180º

6. In which of the following the central atom does does not use sp³ hybrid orbitals in its bonding
   (A) BeF_3^- (B) OH_3^+
   (C) NH_2^- (D) NF_3

7. In HCHO, 'C' has hybridization
   (A) sp   (B) sp²
   (C) sp³   (D) All the above

8. In the compound ©H_3COCl, which type of orbitals have been used by the circled carbon in bond formation
   (A) sp³   (B) sp²
   (C) sp   (D) p

9. Identify the T-shaped molecule in the following
   (A) BF_3 (B) NH_3
   (C) NF_3 (D) ClF_3

10. Triple bond in ethyne is formed from
    (A) Three sigma bonds
    (B) Three pi bonds
    (C) One sigma and two pi bonds
    (D) Two sigma and one pi bond

11. The bonds in the formation of fluorine molecule will be
    (A) Due to s - s overlapping
    (B) Due to s - p overlapping
    (C) Due to p - p overlapping
    (D) Due to hybridization

12. The angular shape of ozone molecule (O_3) consists of
    (A) 1 sigma and 1 pi bonds
    (B) 2 sigma and 1 pi bonds
    (C) 1 sigma and 2 pi bonds
    (D) 2 sigma and 2 pi bonds

13. Which molecules has zero dipole moment
    (A) H_2O (B) CO_2
    (C) HF   (D) HBr

14. Identify the non-polar molecule in the set of compounds given : HCl, HF, H_2, HBr
    (A) H_2 (B) HCl
    (C) HF, HBr   (D) HBr

15. H_2O is dipolar, whereas BeF_2 is not. It is because
    (A) H_2O is linear and BeF_2 is angular
    (B) H_2O is angular and BeF_2 is linear
    (C) The electronegativity of F is greater than that of O
    (D) H_2O involves hydrogen bonding whereas BeF_2 is a discrete molecule
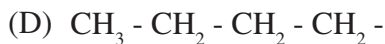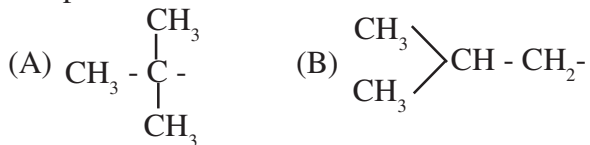
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16. The correct order of dipole moment is
    (A) $CH_4 < NF_3 < NH_3 < H_2O$
    (B) $NF_3 < CH_4 < NH_3 < H_2O$
    (C) $NH_3 < NF_3 < CH_4 < H_2O$
    (D) $H_2O < NH_3 < NF_3 < CH_4$

17. Which of the following arrangement of molecules is correct on the basis of their dipole moments
    (A) $BF_3 > NF_3 > NH_3$ (B) $NF_3 > BF_3 > NH_3$
    (C) $NH_3 > BF_3 > NF_3$ (D) $NH_3 > NF_3 > BF_3$

18. The dipole moment of chlorobenzenen is 1.73 D. The dipole moment of P-dichlorobenzene is expected to be
    (A) 3.46 D   (B) 0.00 D
    (C) 1.73 D   (D) 1.00 D

19. Among the following, the molecule with the highest dipole moment is
    (A) CH_3Cl (B) CH_2Cl_2
    (C) $CHCl_3$ (D) CCl_4

20. Which one in the following is not the resonance structure of CO_2
    (A) O = C = O   (B) O - C = O$^+$
    (C) $^+$O = C - O$^-$ (D) O = C = O

21. The number of possible resonance structures for CO_3^{2-} is
    (A) 2   (B) 3
    (C) 6   (D) 9

22. The bond order of individual carbon-carbon bonds in benzene is
    (A) One   (B) Two
    (C) Between 1 and 2   (D) One and two alternatley

23. During change of O_2 to O_2^- ion, the electron adds on which one of the following orbitals
    (A) π^* orbital   (B) π orbital
    (C) σ^* orbital   (D) σ orbital

24. Which of the following does not exist on the basis moleculer orbital theory
    (A) H_2^+ (B) He_2^+
    (C) He_2 (D) Li_2

25. In O_2^-, O_2 and O_2^{-2} molecular species, the total number of antibonding electrons respectively are
    (A) 7, 6, 8   (B) 1, 0, 2
    (C) 6, 6, 6   (D) 8, 6, 8

26. N_2 accept electron and convert into N_2^-, where this electron goes
    (A) Antibonding π molecular orbital
    (B) Bonding π molecular orbital
    (C) σ bonding molecular orbital
    (D) σ – bonding-bonding molecular orbital

27. In PO_4^{3-} ion the formal charge on the oxygen atom of P - O bond is
    (A) +1   (B) -1
    (C) -0.75   (D) +0.75

28. Bond order and magnetic moment of CO$^+$ is
    (A) 2.5 and paramagnetic moment
    (B) 3.5 and diamagnetic moment
    (C) 3.5 and paramagnetic moment
    (D) 2.5 and diamagnetic moment

29. Which of the following is paramagnetic
    (A) O_2^+ (B) CN^-
    (C) CO   (D) N_2

(Space for Rough Work)

30. Which of the following molecules/ions does not contain unpaired electrons
    (A) O_2^{2-}
    (B) B_2
    (C) N_2^+
    (D) O_2

31. Which of the following molecule has highest bond energy
    (A) F - F
    (B) C - C
    (C) N - N
    (D) O - O

32. Which of the following order of energies of molecular orbitals of N_2 is correct
    (A) $\left(\pi 2p_y\right) < \left(\sigma 2p_z\right) < \left(\pi^* 2p_x\right) = \left(\pi^* 2p_y\right)$
    (B) $\left(\pi 2p_y\right) > \left(\sigma 2p_z\right) > \left(\pi^* 2p_x\right) = \left(\pi^* 2p_y\right)$
    (C) $\left(\pi 2p_y\right) < \left(\sigma 2p_z\right) < \left(\pi^* 2p_x\right) = \left(\pi^* 2p_y\right)$
    (D) $\left(\pi 2p_y\right) > \left(\sigma 2p_z\right) < \left(\pi^* 2p_x\right) = \left(\pi^* 2p_y\right)$

33. The species, having bond angles of 120° is
    (A) PH_3
    (B) ClF_3
    (C) NCl_3
    (D) BCl_3

34. Which one of the following pairs of speices have the same bond order
    (A) CO, NO
    (B) O_2, NO+
    (C) CN-, CO
    (D) N_2, O_2^-

35. Consider the following species CN^+, CN^-, NO and CN which one of these will have the highest bond order
    (A) NO
    (B) CN-
    (C) CN+
    (D) CN

36. Select the compound from the following which dissolves in water
    (A) CCl_4
    (B) CS_2
    (C) $CHCl_3$
    (D) C_2H_5OH

37. The reason for exceptionally high boiling point of water is
    (A) It high specific heat
    (B) Its high dielectric constant
    (C) low ionization of water molecules
    (D) Hydrogen bonding in the molecules of water

38. Which contains strongest H-bond
    (A) O - H....S
    (B) S - H....O
    (C) F - H.....F
    (D) F - H....O

39. H_2O is a liquid while H_2S is gas due to
    (A) Covalent bonding
    (B) Molecular attraction
    (C) H - bonding
    (D) H - bonding and molecular attraction

40. The high boiling point of ethanol (78.2°C) compared to dimethyl ether (-23.6 C,) though both having the same molecular formulae C_6H_6O, is due to
    (A) Hydrogen bonding
    (B) Ionic bonding
    (C) Coordinate convalent bonding
    (D) Resonance

41. Both Ionic and covalent bond is present in the following
    (A) CH_4
    (B) KCl
    (C) SO_2
    (D) NaOH

Space for Rough Work

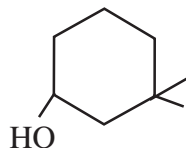42. The structure of isobutyl group in an organic compound is

(A) $CH_3 - \underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{C}} -$

(B) $\underset{CH_3}{\overset{CH_3}{>}}CH - CH_2 -$

(C) $CH_3 - \underset{|}{CH} - CH_2 - CH_3$

(D) $CH_3 - CH_2 - CH_2 - CH_2 -$

43. The IUPAC name of following compound is

$HOOC - CH_2 - \underset{\underset{COOH}{|}}{CH} - CH_2 - CH_2 - COOH$

(A) 2-(carboxy methyl)-pentane -1, 5-dioic acid
(B) 3-carboxy hexane - 1, 6 dioic acid
(C) Butane, 1, 2, 4, -tricarboxylic acid
(D) 4-carboxy hexane-1, 6 dioic acid

44. The IUPAC name of the compound is

(A) 3, 3- dimethy-l-cyclohexanol
(B) 1, 1-dimethy-3-hydroxy cyclohexane
(C) 3, 3-dimethyl-1-hydroxy cyclohexane
(D) 1, 1-dimethyl-3-cyclohexanol

45. The IUPAC name of the following compound is
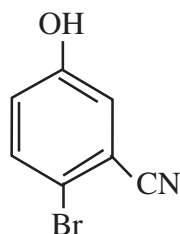
(A) 4-bromo-3-cyanophenol
(B) 2-bromo-5-hydroxybenzonitrile
(C) 2-cyano-4-hydroxybromobenzonitrile
(D) 6-bromo-3-hydroxybenzonitrile

46. If an atom has electronic configuration $1s^2 2s^2 2p^6 3s^2 3p^6 3d^3 4s^2$, it wil be placed in
(A) Second group   (B) Third group
(C) Fifth group   (D) Sixth group

47. All the s-block elements of the periodic table are placed in the groups ...
(A) IA and IIA   (B) IIIA and IVA
(C) B sub groups   (D) VA and VIIA

48. The element californium belongs to the family
(A) Actinide series   (B) Alkali metal family
(C) Alkaline earth family
(D) Lanthanide series

49. An element with atomic number 20 will be placed in which period of the periodic table

(A) 4   (B) 3

(C) 2   (D) 1
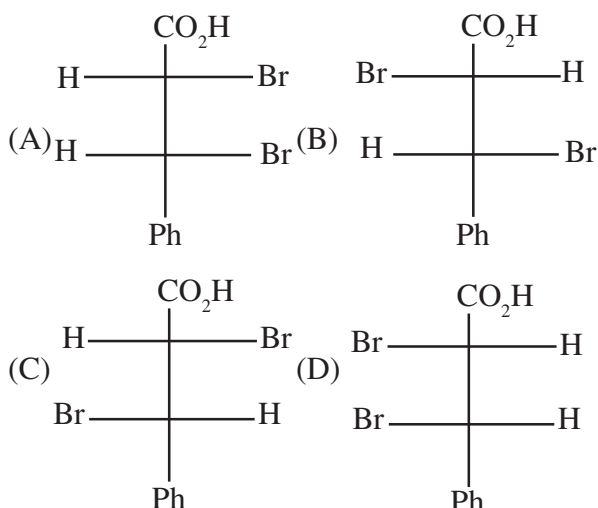
50. Mendeleev's periodic law is based on

(A) Atomic weight   (B) Atomic number

(C) Number of neutrons

(D) None of the above

51. Which of the following pairs has both members from the same group of the periodic table

(A) Mg - Ba   (B) Mg - Na

(C) Mg - Cu   (D) Mg - K

(Space for Rough Work)

52. The stucture of 2R, 3S-dibromocinnamic acid is

(A)
$$CO_2H$$
H——Br
H——Br
Ph

(B)
$$CO_2H$$
Br——H
H——Br
Ph

(C)
$$CO_2H$$
H——Br
Br——H
Ph

(D)
$$CO_2H$$
Br——H
Br——H
Ph

53. the isomers which can be converted into another forms by rotation of the molecules around single bond are
(A) Geometrical isomers (B) Confromers
(C) Enantiomers (D) Diastereomers

54. Least hindered rotation about carbon-carbon bond and observed in
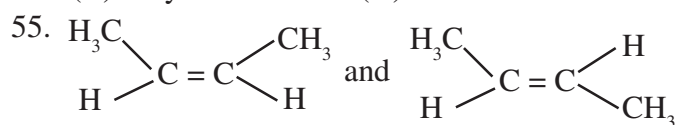(A) Ethane (B) Ethylene
(C) Ethyne (D) Hexachloroethane

55.
$$H_3C \diagdown C=C \diagup CH_3$$
$$H \diagup \qquad \diagdown H$$
and
$$H_3C \diagdown C=C \diagup H$$
$$H \diagup \qquad \diagdown CH_3$$
exhibit which isomerism
(A) Position isomerism
(B) Geometrical isomerism
(C) Optical isomerism
(D) Functional isomerism

56. Stereoismers differ in
(A) Configuration (B) Conformation
(C) They do not differ (D) None of the above

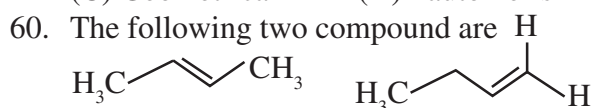57. Which kind of isomerism is possible for 1-chloro-2-nitroethene
(A) Functional group isomerism
(B) Position isomerism
(C) E/Z isomerism (D) Optical ismerism

58. The number of isomers for the compound with molecular formula $C_2BrClFl$ is
(A) 3 (B) 4
(C) 5 (D) 6

59. The type of isomerism observed in urea (NH_2CONH_2) molecule is
(A) Chain (B) Position
(C) Geometrical (D) Tautomerism

60. The following two compound are
$$H_3C \diagup \diagdown \diagup CH_3$$
$$H_3C \diagup \diagup^H \diagdown H$$
(A) Geometrical isomers
(B) Positional isomers
(C) Functional group isomers
(D) Optical isomers

61. In the final of significant figure in
$$\frac{(29.2 - 20.2)(1.79 \times 10^5)}{1.37}$$. The number of significant figure is
(A) 1 (B) 2
(C) 3 (D) 4

62. Which one of the following sets of compounds correctly illustrate the law of reciprocal proportions
(A) P_2O_3, PH_3, H_2O (B) P_2O_5, PH_3, H_2O
(C) N_2O_5, NH_3, H_2O (D) N_2O, NH_3, H_2O

Space for Rough Work

63. The modern atomic weight scale is based on
    (A) C^{12} (B) O^{16}
    (C) H^1 (D) C^{13}

64. Boron has two stable isotopes, $^{10}B(19\%)$ and $^{11}B(81\%)$. The atomic mass that should appear for boron in the periodic table is
    (A) 10.8   (B) 10.2
    (C) 11.2   (D) 10.0

65. What is the volume of CO^2 liberated (in litres) at 1 atmosphere and $0^{\circ}C$ when 10g of 100% pure calcium carbon is treated with excess dilute sulphuric acid (Atomic mass Ca : 40, C : 12, O : 16)
    (A) 0.224   (B) 2.24
    (C) 22.4   (D) 224

66. The weight of silver (at wt. = 108) displaced by a quantity of electricity which diaplaces 5600 mL of O^2 at STP will be
    (A) 54.0 g   (B) 108.0 g
    (C) 5.4 g   (D) 10.8 g

67. The percentage of Se in peroxidates anhydrous anzyme is 0.5% by weighyt (at weight = 78.4). Then minimum molecular weight of peroxidase anhydrous enzyme is
    (A) 1.568×10^4 (B) 1.568×10^3
    (C) 15.68   (D) 3.136×10^4

68. A mental M of equivalent mass E forms an axide of molecular formula M_xO_y. The atomic mass of the metal is given by the correct equation
    (A) $2E(y/x)$ (B) xyE
    (C) E/y   (D) y/E

69. What is the weight of oxygen required for the complete combusion of 2.8 kg of ethylene
    (A) 2.8 kg   (B) 6.4 kg
    (C) 9.6 kg   (D) 96 kg

70. Equivalent weight of crystalline oxalic acid is
    (A) 30   (B) 63
    (C) 53   (D) 45

71. Assuming fully decomposed, the volume of CO^2 released at STP on heating 9.85g of $BaCO_3$ (Atomic mass of Ba = 137) will be
    (A) 0.84 L   (B) 2.24 L
    (C) 4.06 L   (D) 1.12 L

72. To dissolve 0.9g metal 100 mL of 1N HCl is used. What the equivalent wt. of metal
    (A) 7   (B) 9
    (C) 10   (D) 6

73. Onhe litre hard water contians 12.00 mg Mg^{2+}. Milli equivalent of washing soda required to remove its hardness is
    (A) 1   (B) 12.15
    (C) 1×10^{-3} (D) 12.15×10^{-3}

74. In a metal oxide, there is 20% oxygen by weight. Its equilvalent weight is
    (A) 40   (B) 64
    (C) 72   (D) 32

75. Which one of the following is the lighest
    (A) 0.2 mole of hydrogen gas
    (B) 6.022×10^{22} molecules of nitrogen
    (C) 0.1 g of silver
    (D) 0.1 mole of oxygen gas

Space for Rough Work

76. The density of a nucleus of an atom is
    (A) 2.4×10^{15} kg m^{-3} (B) 2.4×10^{19} kg m^{-3}
    (C) 2.4×10^{17} kg m^{-3} (D) 2.4×10^{14} kg m^{-3}

77. The radius of an atom is of the order of
    (A) 10^{-10} cm   (B) 10^{-13} cm
    (C) 10^{-15} cm   (D) 10^{-8} cm

78. Splitting of signals is caused by
    (A) Proton   (B) Neutron
    (C) Positron   (D) Electron

79. The proton and neutron are collectively called as
    (A) Deuteron   (B) Position
    (C) Meson   (D) Nucleon

80. The number of neutrons in oxygen-18 are
    (A) 2   (B) 18
    (C) 10   (D) 12

81. Nitrogen atom has on atomic number of 7 and oxygen has an atomic number 8. The total number of electrons in a nitrate ion will be
    (A) 8   (B) 16
    (C) 32   (D) 64

82. The number of electrons and neutrons of an element is 18 and 20 respectively. It mass number is
    (A) 17   (B) 37
    (C) 2   (D) 38

83. An ion has a charge of -1. It has eighteen electrons and twenty neutrons. Its mass number is
    (A) 17   (B) 37
    (C) 18   (D) 38

84. The mass number of an anion X^{3-} is 14. If there are ten electrons in the anion, the number of neutrons in the nucleus of atom will be
    (A) 10   (B) 14
    (C) 7   (D) 5

85. In which one of the following the number of protons is greater than neutrons but number of portons is less than the number of electrons
    (A) D_3O^+ (B) SO_2
    (C) H_2O (D) OH^-

86. Which of the following particles has more electrons than neutrons
    (A) C   (B) F
    (C) O^{-2} (D) Al^{+3}

87. Which one of the following is not isoelectronic with O^2
    (A) N^{3-} (B) F^-
    (C) Tl^+ (D) Na^+

88. Be^{2+} is isoelectronic with
    (A) Mg^{2+} (B) Na^+
    (C) Li^+ (D) H^+

89. The energy of secod Bohr orbit of the hydrogen atom is -328 kj mol^{-1}, hence the energy of fourth Bohr orbit would be
    (A) -41 kJ mol^{-1} (B) -1312 kJ mol^{-1}
    (C) -164 kJ mol^{-1} (D) -82 kJ mol^{-1}

90. The ratio between kinetic energy and the total energy of the electrons of hydrogen atom according to Bohr's model is
    (A) 2 : 1   (B) 1 : 1
    (C) 1 : -1   (D) 1 : 2

(Space for Rough Work)

91. The number of gram molecules of a substance present in unit volume is termed as
(A) Activity
(B) Normal solution
(C) Molar concentration
(D) Active mass

92. The law of mass action was enunciated by
(A) Guldberg and waage
(B) Bodenstein
(C) Birthelot
(D) Graham

93. The rate at which substances react depends on their
(A) Atomic weight
(B) Molecular weight
(C) Equivalent weight
(D) Active mass

94. 120 g of urea are present in 5 L solution, the active mass of urea is
(A) 0.2
(B) 0.06
(C) 0.4
(D) 0.08

95. Equimolar concentrationhs of H_2 and I_2 are heated to equilibrium in a 2 litre flask. At equilibrium, the forward and the backward rate constants are found to be equal. What percentage of initial concentration of H_2 has reacted at equilibrium
(A) 33%
(B) 66%
(C) 50%
(D) 40%

96. In the gas phase reaction, $C_2H4 + H_2 \rightleftharpoons H_2 + I_6$, the equilibrium constant can be expressed in units of
(A) $litre^{-1} mole^{-1}$
(B) $litre \, mole^{-1}$
(C) $mole^2 \, litre^{-2}$
(D) $mole \, litre^{-1}$

97. In a 500 mL capacity vessel CO and Cl_2 are mixed to form $COCl_2$. At equilibrium, it contains 0.2 moles of $COCl_2$ and 0.1 mole each of CO and Cl_2. The equilibrium constant k_c for the reaction $CO + Cl_2 \rightleftharpoons COCl_2$ is
(A) 5
(B) 10
(C) 15
(D) 20

98. When 3 moles of A and 1 mole of B are mixed in 1 litre vessel the following reaction takes place $A_{(g)} + B_{(g)} \rightleftharpoons 2C_{(g)}$. 1.5 moles of C are formed. The equilibrium constant for the reaction is
(A) 0.12
(B) 0.25
(C) 0.50
(D) 4.0

99. For the reaction $H_2 + I_2 \rightleftharpoons 2HI$, the equilibrium conscentration of H_2, I_2 and HI are 8.0, 3.0 and 28.0 mol per litre respecively, the equilibrium constant of the reacion is
(A) 30.66
(B) 32.66
(C) 34.66
(D) 36.66

100. The equilibrium constant (K_c) for the reaction $HA + B \rightleftharpoons BH^+ + A^-$ is 100. If the rate constant for the forward reaction is 10^5, rate constant for the backward reaction is
(A) 10^7
(B) 10^3
(C) 10^{-3}
(D) 10^{-5}

101. 2 mol of N_2 is mixed with 6 mol of H_2 in a closed vessel of one litre capacity. If 50% of N_2 is is converted into NH_3 at equilibrium, the value of K_c for the reaction $N_{2(g)} + 3H_{2(g)} \rightleftharpoons 2NH3(g)$ is
(A) 4/27
(B) 27/4
(C) 1/27
(D) 24

$\left(\text{Space for Rough Work}\right)$

102. The equilibrium constant is 6.0×10^{-5} for the $N_2 + O_2 \rightleftharpoons 2NO$ reaction. If the concentration of nitrogen in 0.10 mol/L and concentration of oxygen is 0.20 mol/L at equilibrium. Then the concentration of nitric oxide at equilibrium is
   (A) $10.9 \times 10^{-3} mol / L$ (B) $10.9 \times 10^{-3} mol / L$
   (C) $10.9 \times 10^{-5} mol / L$ (D) $10.9 \times 10^{5} mol / L$

103. One mole of ethyl alcohol was treated with one mole of acetic acid at 25°C. Two-third of the alcohol change into ester at equilibrium. The equilibrium constant for the reaction will be
   (A) 1   (B) 2
   (C) 3   (D) 4

104. Given that the equilibrium constant for the reaction $2SO_2(g) + O_2(g) \rightleftharpoons 2SO_3(g)$ has a value of 278 at a particular temperature. What is the value of the equilibrium constant for the following reaction at the same temperature
   $SO_3(g) \rightleftharpoons SO_2(g) + \frac{1}{2}O_2(g)$
   (A) 1.8×10^{-3} (B) 3.6×10^{-3}
   (C) 6.0×10^{-2} (D) 1.3×10^{-5}

105. The unit of K_c from the reaction $N_2 + 3H_2 \rightleftharpoons 2NH_3 + Q$ is
   (A) $lit^2 mol^{-2}$ (B) $mol\ lit^{-1}$
   (C) $mol^2 lit^2$ (D) $lit\ mol^{-2}$

106. Which will not affect the degree of ionisation
   (A) Temperature   (B) Concentration
   (C) Type of solvent   (D) Current

107. The addition of a polar solvent to a solid electroyte results in
   (A) Polarization   (B) Association
   (C) Ionization   (D) Electron transfer

108. Dissociation constant of a weak acid is decreased by
   (A) Addition of a strong acid
   (B) Addition of a salt of the above weak acid
   (C) Decreasing temperature
   (D) Dilution of the soution

109. 0.2 molar solution of formic acid is ionized 3.2%. It ionization constant is
   (A) 9.6×10^{-3} (B) 2.1×10^{-4}
   (C) 1.25×10^{-6} (D) 4.8×10^{-5}

110. A weak acid HA has a Ka of 1.00×10^{-5}. If 0.100 mol of this is dissolved in one litre of water the percentage of acid dissociated at equilibrium is lose to
   (A) 99.0%   (B) 1.00%
   (C) 99.9%   (D) 0.100%

111. Which of the following is not a Lewis acid
   (A) BF_3 (B) $FeCl_3$
   (C) SiF_4 (D) $C2H_4$

112. Which of the following behaves as both Lewis and Bronsted base
   (A) BF_3 (B) Cl^-
   (C) CO (D) None of these

113. Which of the following molecules acts as a Lewis acid
   (A) $(CH_3)_3B$ (B) $(CH_3)_2O$
   (C) $(CH_3)_3P$ (D) $(CH_3)_3N$

$\boxed{\text{Space for Rough Work}}$

114. BF_3 is used as a catalyst in several industrial processes due to its

(A) Strong reducing agent

(B) Weak reducing agent

(C) Strong Lewis acid nature

(D) Weak Lewis acid character

115. The conjugate base of HSO_3^- is

(A) H_2SO_3 (B) SO_2

(C) SO_3^{2-} (D) H_2S

116. Which of the follwing can act both as Bronsted acid and Bronsted base

(A) Cl^- (B) HCO_3^-

(C) H_3O^+ (D) OH^-

117. Which one of the following can be classified as a Bronsted base

(A) NO_3^- (B) H_3O^+

(C) NH_4^+ (D) CH_3COOH

118. Ammonia gas dissolves in water to give NH_4OH. In this reaction water acts as

(A) An acid   (B) A base

(C) A salt   (D) A conjugate base

119. Cl^- is the conjugate base of

(A) $HClO_4$ (B) HCl

(C) $HOCl$ (D) $HClO_3$

120. Conjugate base of HPO_4^{2-} is

(A) PO_4^{3-} (B) $H_2PO_4^-$

(C) H_3PO_4 (D) H_4PO_3

$\boxed{\textbf{Space for Rough Work}}$

Space for Rough Work