MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

I B.Tech– I SEM (MR 20 - 2020-21 Admitted Students)

I Mid Examination Subjective Question Bank

Subject: Engineering Chemistry **Branch: CSE, (AI &ML, IoT, CS, DS), IT**

Subject Code:AOBI7

Instructions:

1. All the questions carry equal marks

2. Answer all the questions

Q.No.	Question	Bloom's Taxonomy Level	CO
	Module-I		
1.	With the help of neat diagram describe the softening of water by Ion exchange method and give its advantages and disadvantages	Understanding	1
2.	Suggest and explain suitable methods to avoid boiler troubles inside the boiler	Applying	1
3.	Write a brief account on i) Scale &Sludge formation ii) Caustic embrittlement	Understanding	1
4.	Explain the softening of water by using Cold Lime soda method with a neat labelled diagram.	Understanding	1
5.	Calculate the carbonate and non-carbonate hardness of water sample containing the following dissolved salts per litre. $Mg(HCO_3)_2$=14.6mgs, $Ca(HCO_3)_2$=16.2 mgs, $CaSO_4$=13.6 mgs, $MgSO_4$=12 mgs,$MgCl_2$=9.5 mgs.	Applying	1
6	Suggest and Explain suitable method for desalination of brackish water with the help of neat diagram and give its advantages.	Applying	1
	Module II		
1.	Draw a neat labelled molecular orbital energy level diagram of F_2. Find out its bond order, bond nature and magnetic properties.	Understanding	2
2.	Give a brief account on linear combination of atomic orbitals (LCAO) and give its significance.	Understanding	2
3.	Analyse the crystal field splitting of d-orbitals of octahedral complexes strong field and weak field ligands with suitable examples.	Analyzing	2
4.	Make use of Crystal Field Theory, explain splitting of d-orbitals of tetrahedral complex by taking [Ni $(CO)_4$] as example	Applying	2
5.	Write the salient features of crystal field theory	Understanding	2
6.	Distinguish p-doping and n-doping of conductance of solids with suitable examples.	Analyzing	2
	Module III		
1.	What are fuel cells? Explain the construction and working of H_2 – O_2fuel cell and give its applications.	Understanding	3
2.	By making use of Glass electrode how do you determine the pH of a solution?	Applying	3
3.	Describe the construction and working of Lead-acid battery along with reactions involved in during charging and discharging.	Understanding	3

Signature of Faculty **Signature of the HOD**

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

I B.Tech– I SEM (MR20-2020-21 Admitted Students)

I mid Examination Objective Question Bank

Subject: Engineering Chemistry Branch /Specialization:CSE (AI&ML, IoT, CS, DT), IT

Subject code:AOB17

1. The purification of brackish water by reverse osmosis is also called as [ ]
   A. Caustic embrittlement B. Super filtration C. Lime-soda process D. Ion exchange

2. One part of $CaCO_3$ equivalent hardness per 10^5 parts of water is also called as. [ ]
   A. Degree Clarke B. ppm C. Degree French D. Mg/L

3. Boiler corrosion caused by using highly alkaline water in boiler is called [ ]
   A. Corrosion B. Boiler corrosion C. Caustic embrittlement D. Erosion

4. Caustic embrittlement can be avoided by using. [ ]
   A. Sodium phosphate B. hydrogen C. ammonium hydroxide D. Sodium sulphate

5. Caustic embrittlement is a type of. [ ]
   A. boiler corrosion B. conditioning C. Scale formation D. Sludge formation

6. The soft loose and slimy precipitate formed within the boiler is called. [ ]
   A. scale B. sludge C. embrittlement D. coagulation

7. Sodium meta aluminate used in internal treatment of boiler water produces flocculent precipitates of [ ]
   A. $Mg(OH)_2$& $Al(OH)_3$ B. NaOH & $Al(OH)_3$ C. $Ca(OH)_2$& $Al(OH)_3$ D. $Ca(OH)_2$& $Mg(OH)_2$

8. In low pressure boilers carbonate conditioning of boiler feed water carries out to remove [ ]
   A. calcium bicarbonate B. calcium sulphate C. calcium chloride D. calcium nitrate

9. The Alkalinity of water is due to. [ ]
   A. OH^-& CO_3^{-2} ions B. Cl^-& SO_4^{-2} ions C. NO_3^-& Br^- ions D. None

10. The Alkalinity of water sample is a measure of its capacity to neutralize------ [ ]

    A. acid B. base C. buffer D. none

11. Temporary hardness in water is removed by. [ ]
    A. filtration B. sedimentation C. Boiling D. coagulation

12. Blow-down operation causes the removal of [ ]
    A. scales B. sludge C. acidity D. sodium chloride

13. The exhausted anion exchange resin can be regenerated by using. [ ]
    A. Dil. HCl B. Dil. NaOH C. Concentration H_2SO_4 D. NaCl

14. Permanent hardness of water cannot be removed by [ ]

A. Lime soda B. By zeolite process C. Boiling D. By ion-exchange process.

15. Hard water is unfit for use in boilers for generating steam because [ ]
A. Its boiling point is higher B. Steam is generated at high temperature
C. Water decomposes into O_2 and H_2 D. It produces scales inside the boiler

16. Estimation of hardness of water by EDTA method is used to determine [ ]
A. Total hardness B. Temporary hardness only C. Permanent hardness only D. All the above

17. Hard water can be softened by passing it through. [ ]
A. Lime stone B. Sodium hexa Meta phosphate C. Ion-exchange resin D. Sodium silicate

18. Calgon is a trade name given to. [ ]
A. Sodium silicate B. Sodium hexa Meta phosphate
C. Sodium Metaphosphate D. Calcium phosphate.

19. Brackish water mostly contains dissolved [ ]
A. Calcium salts B. Magnesium salts C. Turbidity D. Sodium chloride

20. Calgon formula is [ ]
A. $Na_2[Na_4(PO_3)_6]$ B. $Na[Na_4(PO_3)_6]$ C. $Mgso_4.7H_2O$ D. $Na_4[Na_3(PO_3)_6]$

21. Buffer used in the estimation of hardness by EDTA Method is [ ]
A. NaCl , NaOH B. $CaCl_2$,$Ca(OH)_2$ C. NH_4Cl , NH_4OH D. $Mgcl_2$, $Mg(OH)_2$

22. The external treatment of boiler feed water done by [ ]
A. Lime-soda process B. Sodium sulphate treatment C. Calgon process
D. Sodium aluminate treatment.

23. The process of wet-steam formation is called. [ ]
A. Foaming B. Priming C. Corrosion D. Caustic embrittlement

24. Mechanical steam purifiers avoid. [ ]
A. Corrosion B. Priming C. Scale formation D. Sludge formation

25. Castor oil is a [ ]
A. Anti-skinning agent B. Anti-foaming agent C. Anti-ageing agent D. Anti-corrosive agent

26. Liquid chlorine is most effective. [ ]
A. Disinfectant B. CoagulantC. Flocculent D. Sterilizing agent

27. Disinfection by ozone is due to liberation of. [ ]
A. Oxygen B. Nascent oxygen C. Molecular oxygen D.None

28. The formula of chloramine is [ ]
A. $ClNH_2$ B. $NHCl_2$ C. NCl_3 D. NH_2Cl_2

29. Phosphate conditioning of boiler feed is carried out by. [ ]
A. Na_3PO_4 B. $Ca(PO_4)_2$ C. $Mg(PO_3)_2$ D. H_3PO_4

30. Hardness of water is caused by [ ]
A. $CaCl_2$ B. NaCl C. Na_2CO_3 D. K_2S

31. Hard water contains. [ ]
A. $Na^{\oplus}$ B. Mg^{2+} C. Ca^{2+} D.Both (b) and (c)

32. Permanent hardness of water is due to. [ ]
A. HCO_3^- B. CO_3^- C. Cl^- D. $Na^{\oplus}$

33. Tannins and agar-agar are used for [ ]
A. phosphate conditioning B. carbonate conditioning
C. colloidal conditioning D. calgon conditioning

34. The demineralization of water is called [ ]
A. Zeolite process B. Ion-exchange process C. Lime–soda process D. None

35. Which is not the unit of hardness of water? [ ]
A. ppm B. epm C. Degree Clark D. mg/L

36. The relation between mg/L and ppm is [ ]
A. 1 mg/L = 1 ppm B. 10 mg/L = 1 ppm C. 1 mg/L = 10 ppm D. 1 mg

37. In EDTA titration, the colour of the end point is [ ]
A. Red B. BlueC.Yellow D. No change

38. Caustic embrittlement is a type of [ ]
A. Boiler corrosion B. conditioning C. scale formation D. sludge formation

39. The Hardness of water is 10 ppm.It can be expressed in degree Clark as [ ]
A. 0.0007^o Cl B. 0.07^o Cl C. 0.7^o Cl D. 7.0^o Cl

40. Purest form of natural water is [ ]
A. Sea water B. River water C. Rain water D. Lake water

41. Which of the following salt cause least hardness to water when converted into $CaCO_3$ equivalents? [ ]
A.10 mg of $CaCO_3$ B. 19 mg of $CaSO_4$ C. 10 mg of MgI_2 D. 10 mg of $CaCl_2$

42. The full name of EDTA. [ ]
A. di amine tetra acetic acid B. Ethylene di tetra amine acetic acid
C. Ethylene amine tetra acetic acid D. Ethylene tetra acetic acid

43. A water sample found to posses 16.2 mg/l of $Ca(HCO_3)_2$. Its hardness in terms of $CaCO_3$ equivalents. [ ]
A. 100 ppm B. 10 ppm C. 16.2 ppm D.1000 ppm

44. Water can be sterilized by using [ ]
A. Cl_2 B. CCl_4 C. $CaCO_3$ D. NaOH

45. Brackish water can be purified by using [ ]

A. Lime–soda process B. Permutit process C. Filtration D. Reverse osmosis method

46. Best method of removing hardness of water is [ ]
A. Ion exchange B. Permutit C. Lime–soda D.Boiling

47. Hardness of water is expressed in terms of equivalents of [ ]
A. $MgCO_3$ B. $CaCO_3$ C. Na_2CO_3 D. K_2CO_3

48. Caustic embrittlement is caused due to the presence of [ ]
A. NaCl B. NaOH C. $MgCO_3$ D. KNO_3

49. Priming and foaming in boilers produce [ ]
A. Wet steam B. Dry steam C. Soft steam D. Hard steam

50. The exhausted cation exchange resin can be regenerated by treating with [ ]
A. Dil. NaOH B. Dil. HCl C. Distilled water D. Dil. NaCl

51. The filling of molecular orbital takes place according to [ ]
A. Aufbau Principle B. Pauli Exculsion Principle C. Hund's rule D. The above

52. Molecular orbital theory was developed mainly by. [ ]
A. Pauling B.Pauling and Slater C. Mulliken D. Thomson

53. The interaction between pair of orbitals of the same type is. [ ]
A. Attractive B. Repulsive C. There is no interaction D. None of the above

54. According to Molecular Orbital Theory, the shape and size of a molecular orbital depends upon[ ]
A. Shape and size of the combining atomic orbitals B. Numbers of the combining atomic orbitals
C. Orientation of the combining atomic orbitals D. All the above

55. Antibonding molecular orbitals are produced by [ ]
A. Constructive interaction of atomic orbitals. B. Destructive interaction of atomic orbitals
C. the overlap of the atomic orbitals of two negative ions D. all of these

56. The bond order of a molecule is given by [ ]
A. The difference between the number of electrons in bonding and antibonding orbitals
B.Total number of electrons in bonding and antibonding orbitals
C. Twice the difference between the number of electrons in bonding and antibonding electrons
D. Half the difference between the number of electrons in bonding and antibonding electrons

57. The difference in energy between the bonding molecular orbital formed and the combining atomic orbitals is called [ ]
A. Bond energy B. Activation energy C. Stabilization energy D. Destabilization energy

58. If Nx is the number of bonding orbitals of an atom and Ny is the number of antibonding orbitals, then the molecule/atom will be stable if [ ]
A. Nx>NY B. Nx=NY C. Nx<NY D. Nx≤Ny

59. Bond Order of O_2, F_2, N_2 respectively are [ ]

A. +1,+2,+3 B. +2,+3,+1 C. +2,+1,+3 D. +3, +2, +1

60. Which of the following molecule does not exist due to its zero bond order? [ ]
A. H_2^+ B. He_2^+ C. He_2 D. H_2^-

61. What is the bond order in $O_2^{+\cdot}$ [ ]
A. 3.5 B. 2.0 C. 1.5 D. 2.5

62. The bond order in N_2 molecule is [ ]
A. 1 B. 2 C. 3 D.4

63. The bond order of He_2^+ molecule ion is [ ]
A. 1 B. 2 C. ½ D. ¼

64. The combination of H ($1s^1$) and F ($2p_x^1$) gives [ ]
A. Bonding orbital B. Antibonding orbital C. Both bonding and antibonding orbital
D.None of the mentioned

65. Which of the following order of energies of molecular orbitals of N_2 is correct? [ ]
A. $(\pi 2py) < (\sigma 2pz) < (\pi^* 2px) \approx (\pi^* 2py)$ B. $(\pi 2py) > (\sigma 2pz) > (\pi^* 2px) \approx (\pi^* 2py)$
C. $(\pi 2py) < (\sigma 2pz) > (\pi^* 2px) \approx (\pi^* 2py)$ D. $(\pi 2py) > (\sigma 2pz) < (\pi^* 2px) \approx (\pi^* 2py)$

66. Which of the following statement is not correct from the view point of molecular orbital theory? [ ]

A. Be_2 is not a stable molecule.
B. He_2 is not stable but He_2^+ is expected to exist.
C. Bond strength of N_2 is maximum amongst the homonuclear diatomic molecules belonging to the second period.
D. The order of energies of molecular orbitals in N_2 molecule is $\sigma 2s < \sigma^* 2s < \sigma 2p_z < (\pi 2p_x = \pi 2p_y) < (\pi^* 2p_x = \pi^* 2p_y) < \sigma^* 2p_z$

67. Which one of the following is paramagnetic? [ ]
A. N_2 B. NO C. CO D. F_2

68. Which of the following molecule is paramagnetic [ ]
A. Chlorine B. Nitrogen C. Oxygen D. Hydrogen

69. The paramagnetic nature of oxygen molecule is best explained on the basis of
A. Valence bond theory B. Resonance C. Molecular orbital theory D. Hybridization

70. According to molecular orbital theory, the Paramagnetism of O_2 molecule is due to presence of [ ]

A. Unpaired electrons in the bonding σ molecular orbital
B. Unpaired electrons in the antibonding σ molecular orbital
C. Unpaired electron in the bonding π molecular orbital
D. Unpaired electrons in the antibonding π molecular orbital

71. Which of the following molecule is not paramagnetic [ ]
A. O_2 B. O_2^+ C. O_2^{-2} D. O_2^-

72. In which of the following pairs the two molecules have identical bond order [ ]
A. N_2, O_2^{+2} B. N_2, O_2^{-} C. N_2^{-}, O_2 D. O_2^{+}, N_2

73. The bond order is not '3' for [ ]
A. N_2^{+} B. O_2^{+2} C. N_2 D. NO^{+}

74. From elementary molecular orbital theory we can give the electronic configuration of the singly positive nitrogen molecular ion N_2^{+} as [ ]
A. $\sigma(1s)^2\sigma*(1s)^2\sigma(2s)^2\sigma*(2s)^2\pi(2p)^4\sigma(2p)^1$ B. $\sigma(1s)^2\sigma*(1s)^2\sigma(2s)^2\sigma*(2s)^2\sigma(2p)^1\pi(2p)^3$
C. $\sigma(1s)^2\sigma*(1s)^2\sigma(2s)^2\sigma*(2p)^2\pi(2p)^4$ D. $\sigma(1s)^2\sigma*(1s)^2\sigma(2s)^2\sigma*(2s)^2\sigma(2p)^2\pi(2p)^2$

75. The paramagnetic property of the oxygen molecule due to the presence of unpaired electrons present in [ ]

A.$(\sigma 2px)^1$ and $(\sigma*2px)^1$ B. $(\sigma 2px)^1$and $(\pi 2py)^1$ C. $(\pi*2py)^1$ and $(\pi*2pz)^1$ D. $(\pi*2py)^1$and $(\pi 2py)^1$

76. The total number of ligandsdirectly attached to central metal atom is called [ ]
A. Effectiveatomicnumber B. Coordination number C. Primaryvalency D. Oxidation number

77. Which response gives the correct coordination number and oxidation number of the transition metal atom in$[Co(NH_3)_2(H_2O)_2Cl_2]^{+}$? [ ]
A. C.N. = 2; O.N. = +3 B. C.N. = 3; O.N. = +1 C. C.N. = 4; O.N. = +2 D. C.N. = 6; O.N. = +3

78. Which one of the following is a monodentateligand? [ ]
A. CN^{-} B. EDTA C. $C_2O_4^{-2}$ D. $H_2NCH_2CH_2NH_2$

79. Consider the coordination compound, $Na_2[Pt(CN)_4]$. The Lewis acidis [ ]
A. $[Pt(CN)_4]^{2-}$ B. Pt C. Pt^{2+} D. CN^{-}

80. In which one of the following species does the transition metal ion have d^3 electronic configuration? [ ]
A. $[Cr(NH_3)_6]^{3+}$ B. $[Co(OH_2)_6]^{2+}$ C. $[CoF_6]^{3-}$ D. $[Fe(CN)_6]^{3-}$

81. Among the following ions which one has the highest paramagnetism [ ]
A. $[Cr(H_2O)_6]^{3+}$ B. $[Fe(H_2O)_6]^{2+}$ C. $[Cu(H_2O)_6]^{2+}$ D. $[Zn(H_2O)_6]^{2+}$

82. The complex $[Co(NH_3)_5Br]SO_4$ will give white pptwith : [ ]
A.$PbCl_2$ B.$AgNO_3$ C. KI D.None

83. $[Co(NH_3)_6]^{3+}$ ion is: [ ]
A. Paramagnetic B. Diamagnetic C. Ferro magneticD.None

84. Whichof thefollowingismostlikelystructureof$CrCl_3$, $6H_2O$if 1chlorineofthecompound is precipitated by adding $AgNO_3$ to its aqueous solution: [ ]
A.$CrCl_3.6H_2O$ B. $[Cr(H_2O)_3Cl_3](H_2O)_3$ C.$[CrCl_2(H_2O)_4]Cl.2H_2O$ D. $[CrCl_2(H_2O)_5]Cl_2.H_2O$

85. The co-ordination number and oxidation numberof X in $[X(SO_4)(NH_3)_4]Cl$ is : [ ]

A. 10and3 B. 2and6 C. 6and3 D. 6 and4

86. Which of the following complex speciesinvolves d^2sp^3 hybridization : [ ]
A. $[CoF_6]^{3-}$ B. $[Co(H_2O)_6]^{3+}$ C. $[Fe(CN)_6]^{3-}$ D. $[Fe(H_2O)_6]^{3+}$

87. Acomplexcompoundinwhichtheoxidationnumberofametaliszero , is
A. $K_4[Fe(CN)_6]$ B. $K_3[Fe(CN)_6]$ C. $[Ni(CO)_4]$ D. $[Pt(NH_3)_4]Cl_2$

88. A ligand can also be regardedas [ ]
A. Lewisacid B. Bronstedbase C. Lewisbase D. Bronstedacid

89. Geometrical shapes of the complexes formed by the reaction of Ni^{2+} with Cl^-,CN^- and H_2O respectivelyare [ ]
A. Octahedral, tetrahedral andsquareplaner B. Tetrahedral, square planer andoctahedral
C. Square planer, tetrahedralandOctahedral D. Octahedral, square planer andtetrahedral

90. Which of the following facts about the complex $[Cr(NH_3)_6]Cl_3$is wrong? [ ]
A. The complex involves d^2sp^3 hybridization and is octahedral in shape
B. The complex isparamagnetic
C. The complex is an outer orbitalcomplex
D. The complex gives white precipitate with silver nitratesolution

91. The magnetic moment (spin only) of$[NiCl_4]^{2-}$ is [ ]
A. 1.82BM B. 5.46BM C. 2.82BM D. 1.41BM

92. Amongtheligands NH_3, en, $CN^-$and CO the correct order of their increasing ieldstrengthis[ ]
A. $CO<NH_3<en<CN^-$ B. $NH_3<en<CN^-<CO$ C. $CN^-<NH_3<CO<en$ D.$en<CN^-<NH_3<CO$

93. Crystal field splitting thenumber of unpaired electrons calculated in $[Co(NH_3)_6]^{3+}$ and $[Co(F_6)]^{3-}$are [ ]
A. 4and4 B. 0and2 C. 2and4 D. 0 and4

94. The coordination number of cobalt in the complex$[Co(en)_2Br_2]Cl_2$ [ ]
A. 2 B. 4 C. 5 D. 6

95. Whichistheexampleofhexadentateligand? [ ]
A.2,2-dipyridyl B. Dimethylglyoxime C.Aminodiacetateion D. Ethylene diammine tetra acetateion

96. The filling of electrons into t_{2g}& eg set of orbitals in $[Co(F_6)]^{3-}$ [ ]
A.$t2g^4$& eg^2B.$t2g^3$& eg^3C. $t2g^2$& eg^4D. $t2g^6$& eg^0

97. Pickoutfromthefollowingcomplexcompounds, apoorelectrolyticconductorinsolution [ ]
A.$K_2[PtCl_6]$ B. $[Co(NH_3)_3(NO_2)_3]$ C. $K_4[Fe(CN)_6]$ D. $[Cu(NH_3)_4]SO_4$

98. The type of hybridization involved in the metal ion of $[Ni(H_2O)_6]^{2+}$ complex is? [ ]

A. d^3sp^2 B. sp^3d^2 C. sp^3 D. dsp^2

99. Consider the coordination compound, K_2 [Cu (CN) $_4$]. A coordinate covalent bond exists between [ ]

A. K^+ andCN^- B. Cu^{2+} andCN^- (Crystal Field Theory) Strong field ligands

C. K^+ and$[Cu(CN)_4]^{2-}$ D. C and N in CN^-

100. CN^- ligand? [ ]

A. Usually produce high spin complexes and small crystal field splitting
B. Usually produce low spin complexes and small crystal field splitting
C. Usually produce low spin complexes and high crystal field splitting
D. usually produces high spin complexes and high

101. Which of the following does not conduct electricity? [ ]

A. Molten NaCl B. Solution of NaCl in H_2O C. NaCl crystals D.None

102. The unit of specific conductance is [ ]

A. Ohm Cm^{-1} B. Ohm^{-1} cm C. Ohm Cm D. Ohm^{-1} Cm^{-1}

103. The relationship between specific conductivity and equivalent equivalent conductance is [ ]

A.λ_{eq} = C x 100/ K B. λ_{eq} = K.C / 1000 C. λ_{eq} = C x 1000 /K D. λ_{eq} = K x 1000 / C

104. Which of the following is a weak electrolyte? [ ]

A. NH_4OH B. NaOH C. HCl D. NaCl

105. The unit of equivalent conductivity is [ ]

A. Ohm^- cm^2 eq^{-1} B. Ohm^- cm^{-2} eq^{-1} C. Ohm^{-2} cm^2 eq^{-1} D. Ohm^{-2} cm^{-2} eq^{-1}

106. In the standard notation for a voltaic cell, the double vertical line "||" represents: [ ]

A. a phase boundary B. Gas electrode C. a wire (metal) connection D.A salt bridge

107. Which of the following is an oxidation? [ ]

A. $Fe^{+3} + e^- = Fe^{+2}$ B. $Fe = Fe^{+2} + 2e^-$ C. $Fe^{+3} + 3e^- = Fe$ D. $Fe^{+2} + 2e^- = Fe$

108. In an electrochemical cell, electrons travel in which direction? [ ]

A. From the anode to the cathode through the external circuit
B. From the anode to the cathode through the porous cup
C. From the cathode to the anode through the external circuit
D. From the cathode to the anode through the porous cup

109. The reciprocal of the resistance is called [ ]

A. Equivalent conductance B. Specific conductance C. Conductance D. None

110. Primary battery is such a battery [ ]

A. Which can be recharged B. This cannot be recharged
C. In which cell reaction reversible D.Which cannot be reconditioned by replacing chemical

111. The secondary battery is such a battery [ ]

A. Which cannot be recharged B. This can be recharged
C. In which cell reaction irreversible D. This is charged by primary cells

112. An example of secondary battery cell is [ ]
A. Nickle-Cadmium cell B. Daniel cell C. Lechlanche cell D. Bunsen cell

113. A storage cell is a device that can operate [ ]
A. Both as voltage cell & electrical cell B. As voltaic cell C. As electrical cell D.None

114. Calomel electrode potential is dependent of [ ]
A. KCl concentration B. Hg_2-Cl_2 C. Temperature D. None

115. Galvanic cell converts. [ ]
A. Electrical energy into chemical energy B. Chemical energy into Electrical Energy
C. Electrical energy into heat energy D. Chemical energy into heat energy

116. Daniel cell is a combination of standard electrodes of [ ]
A. Cu & Ag B. Zn & Cd C. Zn & Cu D. Cu & Cd

117. When storage cell is operating as voltaic cell it is said to be [ ]
A. Charging B. Discharging C. Neutral D. None

118. A fuel cell converts [ ]
A. Chemical energy of fuels directly to electricity B. Chemical energy of fuels directly to heat
C. Chemical energy of fuels directly to pressure D. None

119. A Device in which the chemical energy is converted into electrical energy called. [ ]
A. Electro chemical cell B. Electrolytic cell C. Solar cell D. None

120. Several electrochemical cells connected in series, that can be used as a source or direct electric current at a constant voltage is called. [ ]
A. Battery B. Voltaic cell C. Electrolytic cell D. Metal conductor

121. In lead-acid storage cell during discharging operation the concentration of H_2SO_4 [ ]
A. Increases B. Decreases C. Increase-decrease D. None

122. Calomel electrode is constructed using a solution of [ ]
A. Saturated KCl B. Saturated $CaCl_2$ C. Saturated NH_4Cl D. Saturated NaCl

123. The electrode potential is the tendency of a metal
A. to gain electrons B. to lose electrons C. either to gain electrons or lose electrons D.None

124. The electrolyte used in construction of lead-acid battery is [ ]
A.dil. HNO_3B. dil. H_2SO_4C. dil. HClD. dil KOH

125. In the cell $Zn/Zn^{++}//Cu^{++}/Cu$ [ ]
A. Copper gets reduced B. Zinc gets oxidized
C. Zinc gets oxidized and copper gets reduced D. Copper gets oxidized

Signature of Faculty **Signature of the HOD**