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Kindergarten Division Phone 011- 645 74 44
P.O.Box 21616 Addis Ababa, Ethiopia *Hillside @ ethionet.et*

Full Name _____ **Grade - 12** **Section** _____ **4 th Quarter Final Exam**

Subject –CHEMISTRY **Year: 2012 E.C** **Exam. Room:** _____ *Time allowed:3hrmin*

General instruction:- write the letter which corresponds to the correct answer in the space provided to each question on the separate answer sheet .

1. The earliest of the attempts to classify elements was that of
   a. Newlands octaves
   b. Mendeleev's classification
   c. Mosely's classification
   d. Dobreiner's triads
2. How mange different subshell exist with principal quantum number. n=3
   a. 9 b. 3 c.6 d 18
3. Which of the following is the most electromagnetic element?
   a. Li b. Na c. Be d. K
4. The total number of S- electron in Mg^{2+} are ?
   a. 4 b. 6 c. 2 d. 10
5. What is the maximum number of unpaired electron in a d – subshell
   a. 2 b. 10 c. 5 d. 3
6. Which of the following electrons identified only by their n and l quantum numbers have the highest energy?
   a. n= 2, ℓ=0
   b. n= 4, ℓ=1
   c. n=3,ℓ=2
   d. n=2,ℓ=2
7. Which of the following quantum numbers is not allowed in the hydrogen atom?
   a. n=2,ℓ=1 ,ml=1
   b. n=1,ℓ=0 ,ml=0
   c. n=8,ℓ=7, ml=-6
   D. n=2, ℓ=0 mℓ=2
8. Which of the following is not a form of chemical bonding?
   a. Covalent bond
   b. Metallic bond
   c. ionic bond
   d. hydrogen landing
9. For element A,B,Cand D have atomic number Z-1, Z , Z+1 and Z +2 respectively if Z=9 then the bond between which pair of elements will be covalent ?
   a. A and C
   b. A and B
   C. B and D
   d. C and D
10. Which of the following ionic compound has the smallest lattice energy?
    a. CsI b. NaF c. LiI d. NaI

11. For the reaction A+3B → 2C, how does the rate of disappearance of B compound to rate of appearance of C?
    a. The rate of disappearance of B is $^1/_2$ the rate of appearance of C
    b. The rate of disappearance of B is $^3/_2$ the rate of appearance of C
    c. The rate of disappearance of B is $^2/_3$ the rate of appearance of C
    d. The rate of disappearance B is $^1/_3$ the rate of appearance of C

12. How does a catalyst increase the rate of a chemical reaction?
    a. By chaming the magnitude of the enthalpy change
    b. By decreasing the potential energy of the reactant
    c. By providing a pathway for the reaction that has law activation energy
    d. By increasing potential energy

For question number 13 to 15 use the following in formation.

The following result were obtained for a reation $2W+3X+Y \rightarrow Z$

trial	[W]mol/L	[X]mol/L	[Y] mol/L	Rate of production Z
1	0.00l	0.001	0.001	2.1×10^{-4}
2	0.002	0.001	0.001	2.1×10^{-4}
3	0.001	0.003	0.001	$6\text{-}3\times1^{-4}$
4	0.002	0.001	0.0005	6.25×10^{-5}

13. What is order with respect to [W]?
.a. 1 b. 0 c. 2 d. 13

14. What is the rate law
    a. Rate =K $[W]^2$ $[X]^3$ [X] c. rate = K $[X]^3$ $[Y]^2$
    b. Rate = [X] $[Y]^2$ d. rate = K$[W]^2$ [X] [Y]

15. What is value of rate constant (K)
    a. $2.1*10^{+5}$ b. $2.1*10^4$ c. $2.1*10^6$ d. $2.1*10^3$

16. If tripling the concentration of a single reactant R in a mult – reactant reaction (while leaving all other conditions unchanged) leads to a nine- fold increase in rate , it can be deduced
    a. That the complete deduced law is rate =K[R]
    b. That the complete rate law is rate =K$[R]^2$
    c. That the complete rate law R= k $[R]^9$
    d. Only that the order with respect to [R] is 2

17. Consider the Arrhenius equation given bellows and mark the correct option $K=Ae^{-Ea}/RT$

a. Rate constant increase exponentially with in increasing activation energy and decreasing temperature
b. Rate constant increases exponentially with increasing activation energy and decreasing temperature
c. Rate constant increases exponentially with decreasing activation energy and increasing temperature
d. Rate constant increases exponentially with decreasing activation energy decreasing temperature.

18. The first order reaction A → B, has K= 5.67 S^{-1} if $[A]_0$ = 0.5 M how long will it take [A] = 0.124M ?

A. 0.122sec b. 0.244sec c. 0.1sec d. 0.488sec

19. An equilibrium that strongly favors products has

a. A value of $K \ll 1$ C. A value of $Q \ll 1$
b. Value of $K \gg 1$ D. A value of $Q \gg 1$

20. If the equilibrium is established by initially adding 0.1 mol each of A and B to a 1L consider, then which of the following must be true once the mixture achieves equilibrium? A+2B $\underline{2C, \rightleftharpoons K= 320}$

a. [A] = [B] c. [A] = [B] =[C]
b. [B] = 2[C] d. [A] > [B]

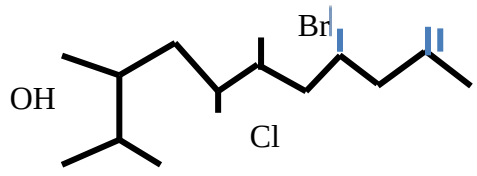
21. In the single component constant system. If degree of freedom is zero, maximum number of phrase that can co –exist?

a. 0 b. 2 c. 3 d 4

22. Which of the following statement is true about ester?

a. ester form intermolecular hydrogen bonding to each other
b. Ester molecule con form intra molecular hydrogen bonds
c. Ester has higher bolding point than those alcohols of comparable molecular weight.
d. Ester molecule cannot form intra molecular hydrogen bonds.

23. Which of the following is an acceptable IUPTC name for the organic compound shown below?



a. 5- chloro -6 -bromo-3 8,9- dimethyl dosecnoic acid.
b. 5- chloro -6,3,8- trimethyl -5 bromo decanoic acid.
c. 5- bromo -6 cjloro -3,8 –dimethyl nonanoic acid acid.
d. 5- bromro -6 – chloro -3,8,9- tri methyl decanoic acid.

24. Fats and oiils develop unpleasant odor due to

a. Rusting b. evaporation c. solidification d. rancidity

25. In chemical terms ,soaps ,can best be described as

a. Simple esters of fatty acid c. salts of carboxylic acid acid

b. Long chain fatty acid d. base formed from glycerol's

26. Which of the following is the strongest lewis base

a. BH_3 B. CH_4 C. NH_3 D. H_2O

27. Which of the following salt doesn't affect the PH of an aqueous solution?

a. $KN0_3$ b. Na CN C. NH_4NO_3 D. NH_4CN

28. An amphiprotic species is a molecule or ion that can -----

a. Accept protons
b. Donate more than one proton
c. Both accept and donate proton
d. Be formed into a double ion

29. According to bronsted lowry , a base is

a. Proton donor c. electron pair donor
b. Proton acceptor d. electron pair per acceptor

30. Hanergy law constant for the molality of methane in benzene at 298 k is $4.27*10^{-5}$ mm Hg . what is the solubility of methane in benzene at 298K under 760 mm Hg

a. $178*10^{-4}$ b. $17.8*10^{-5}$ c. $1.78*10^{-7}$ d. 1787

31. Which of the following combination never forms a buffes solution

a. $HCOOH/HCOO^-$ C. HNO_3 / NO^{3-}
b. HOO_3/CO_3^{2-} D. HF / F^-

32. During the titration of a known value of a strong acid with a strong base , there is

a. Steady increase in PH
b. A sharp increase in PH around the equivalence point
c. A steady decrease in PH
d. A sharp decrease in pH around the end point.

33. Which of the following titration will have an equivalence point at a PH < 7

A. Strong acid with weak base c. strong acid withstrong base
B. Weak acid with weak base d. weak acid with strong base

34. What is construction of hydro oxide ion in a 0.05M solution of solution format (Ka for formic acid is $5.6*10^{-11}$

a. $2.8x10^6$ b.$5.6*10^{-7}$ c. $4.6*10^{-12}$ d. $1.7*10^{-6}$

35. Current of 3.0 A passed through a solution of $AuCl_4$ ion using solid electrodes and it deposited 1.234g of solid. the time of electrophiles is

a. 302sec b. 806sec c. 120sec 1604 sec

36. What condition (s) is the equation $\Delta H = \Delta E+P\Delta V$ applicable?

a. For constant pressure and temperature processes
b. Only for constant pressure process
c. Only for constant temperature process
d. Only for constant volume process

37. Based on the following information ΔH° (kj)

$H_{2(s)} + \frac{1}{2} O_{2\,(g)} \rightarrow H_2 0_{(l)}$ ---------- -286

$2Na_{(s)} + \frac{1}{2} 0_{2\,(g)} \rightarrow Na_2 0_{(S)}$ ---------- -414

Na (s) +1/2 0_2 +1/2 $H_2 \rightarrow$ NaOH(s)--------- -425, what will be the standared enthalpy change for the reaction $Na_2(s) + H_2O$ (s) $\rightarrow$2NaOH (s)?

a. -979kj b. -722kj c. -150kj d. 275kj

38. The bond dissociation energy for H_2, CL_2 and HCl are 104, 58 and 103 kcal respectively , the enthalpy of formation of HCl gas will be
a. -44 k cal c. -88 k cal
b. -22 k cal d. -11 k cal

39. Sodium acetate spontaneously crystallizes out of a supersaturated solution on standing. ther mocly namics quantities of this system for such a process
a. .Δ S< o, ΔH<O C. ΔS>O,XG<O
b. ΔG<O, ΔH>O D. ΔS>O,ΔH>O

40. The reaction NH_3 (s) +HCl(s) $\rightarrow$$NH_4$ Clwhen both ΔH and ΔS are negative , the reaction will be -----
a. Spontaneous at all temperature
b. Non spontaneous at any temperature
c. Spontaneous at low temperature but non spontaneous high temperature
d. Non spontaneous at high temperature.

41. Which of the following must true for reaction that processed spontaneously?
a. ΔG>,O B. ΔG<0 c. ΔG=o d. ΔG>o

42. A system that can exchange matter and energy is _____
a. Open system c. isolated system
b. Closed system d. homogeneous system

43. Heat transferred at constant volume is
a. ΔH B. ΔE c. ΔS d. ΔG

44. We heat a gas inside a liqid conlainer . so tha the volume of the gas stay same . which of the following is true about the process.
a. W>O B. ΔE=O C. q=O D.W=0

45. Which of the following is a path function
a. Volume b. temperature c. work d. pressure

46. A system absorbs 1000 cal of wat and also does 2000 cal of work the net internal energy of the system?_____

a. -1000 b. 1000 c. -3000 d. 3000

47. What is oxidizing open in the reaction $Na_2 Cr_2O_7 + Fe Cl_2 + HCl \rightarrow CrCl_3 + FeCl_3 + NaCl + H_2O$

a. Chromium c. iron

b. Chloride d. sodium

48. The amount of electrolytic product during electrolysis is not affected by .

a. time b. current c. oxidation number d. electrode used

49. Identify the best oxidizing agent among the following ions

a. Na^+ B. Cu^{2+} c. Ag^+ d. Al^{3+}

50. How can silver be lasted on nickel?

a. Electricity to nickel and ina solution of silver ion
b. Electricity to a silver anode in a solution of nickel ion
c. A solution of nicked ions to react with a pieces and a silver
d. Electricity to a nicked cathode in a solution of silvers ion

51. Given the standard reduction potential

$\in^\circ Cu^{2+} / cu = 0.34V$ $E^\circ Sn^{2+} /Sn = -0.14V$

$\in^\circ \mathbf{Zn^{2+}}/Zn = 0.76V$ $E^\circ Ni^{2+}/Ni = -0.26V$

a. Cu^{2+} b. Zn^{2+} c. Ni^{2+} d. Sn^{2+}

52. Conceder the following half reaction

$Fe(OH)_{2\,(s)} + 2e^- \rightarrow Fe_{(s)} + 2OH^-$ of , $E^\circ = -0.88\ V$

$Ni\ O_{2(s)} + 2H_2O\ (l) + 2e \rightarrow Ni(OH)_{2\,(s)} + 2OH_{(aq)}$ $E^\circ = 0.49\ V$

What is the standard cell potential for the given voltaic cell?

a. 1.37 b. 0.39 c. 1.37 d. -0.39

53. What is ΔG° for the reaction below 25° c $2Al^{3+}_{(aq)} + 3Mg_{(s)} \rightarrow 2Al_{(s)} + 3Mg^{2+}_{(aq)}$. $E^\circ_{RED} = 0.71$

a. 411KJ b. -411kJ c. 500KJ d. 400KJ

54. Which of the following is incorrect?

a. Electron flows from high potential to that of low potential
b. If sell equation is multifidi by tow , the corresponding potential is double
c. Voltage of Galvanic cell is algebraic difference of the two Electrode potential
d. Faraday's laws apply both to galvanic and electrolytic cell

55. Agalvamic cell ceases to function after a certain time because.

a. Potential of both electrodes become gelo.
b. Solution of the t6ow half cells becomes equal
c. The electrodes are completely used up
d. Potential of both electrode become equal

56. what is equilibrium constant for the following reaction at 289k

$(Sn_{(s)} + 2Ag^{+}{}_{(aq)} \rightarrow Sn_{(oq)}{}^{2+} Ag_{(s)}$, $E^{\circ}_{cell} = 0.94V$

a. $5.71*10^{31}$ b. $5.71*10^{-31}$ c. $5.0X10^{30}$ d. $5.0*10^{13}$

57. Heating pyrites in air to more surface is known as
a. Bessemerization c, Roasting
b. Calcination d. Reduction

58. Zone refining is used for
a. Concentrating ore c. purification of metal
b. Preliminary treatment d. purification of an ore

59. Which metals different from the others in methods impede to extract it from its are?
a. Ca b. Na c. Al d. Pb

60. Identify the naturally occurring polymer among the following
a. sucrose b. nylen c. dacron d. cellulose

61. Which 0of the following mire abundant among organic molecule
a. Starch b. cellulose c. glucoses d. portions

62. Dacron is an example of
a. Synthetic rubber c.rubber
b. Thermosetting polymer d. polyamide

63. Ribase is an example of
a. RNA b. ketotrise c. aldotetrose d. aldopentase

64. An enzyme that converts starch into maltose is called
a. Maltase benvertase c. amylase d. pepsin

65. Which of the following is non biocegraciable ?
a. Cotton b. polyethylene c. wood d. polysaccharides

66. Which of the following is used to make non sticky cook wares
a. PVC b. polystyrene c. PTFE d.PMMA

67. From the given class of compounds , stronger Intermolecular forces are presents in
a. Elastomers c. addition ploymer
b. thermoplastic d. thermosetting poymer

68. A sucrose molecule on hydrolysis yields
a. Glucose only c. polysaccharides
b. Invert sugar d. glucose and galactose

69. Which among the following is a step growth polymer?

a. PTFE b polyster c. polyethylene d. rubbre

70. Which of the following proteins tram steps oxygen in the blood stream?

a. myglobin b. insulin c. hemoglobin d. albumin

71. An example for human structural protein is

a. insulin b. actine c . cllulose d. keratin

72. The functional group in cyclic glucose or fructose is

a. ether b. aldehyde c. ketone d. anomeric

73. Which of the following polymer – monomers pairs is normally matched?

a. Teflon-propylen c. Perspex- methtlmethacrtlate

b, pvc- chloromethane d. gulucose –β- glucose

74. Haw many tripetides can be formed that contain all the three amino acids glycine alnnine and valine in their structure

a.3 b.6 c.9 d.27

75. What is the $[H^+]$ at the equivalence point for the tuition between HBr and KOH ?

a. $1.0*10^{-9}$ M b. $1.0 * 10^{-7}$ M c. $ro*10^{-5}$M d. $8.9*10^{-16}$ M

76. Zinc Blend is

a. SnS b. ZnO c. $Zn_2 SiO_4$ d.$ZnO.FE_2O_3$

77. The base dissociation constant Kb. for pyridine $C_5 H_5N$ is $1\text{-}4*10^{-9}$ the acid dissociation constant ka, for the pyridium ion $C_S H_3 NH^+$ is _____

a. $7.*10^{-6}$ b. $1.4*10^{-5}$ c. $1.0*10^{-7}$ d. $1.4*10^{-23}$

78. Tin does not react with

a. dilute perchloric acid c. cold water

b. chlorine gas d. cocentration

79. Which of the following ores contain CO_3^{2-}

a. bauxite b. dolomite c. epsomite d. cassitelites

80. If a laboratory assistant cliute 5ml of 0.15 MNaCl solution to a final volume of 5L. What is the final concentration of Na Cl solution?

a. 1500M b. 0.0015M c. 0.00015M d.0.15M