Draw the Structural Formula for 2,4-dimethyl-3-pentanol

Balance this equation $CLO_2^-$ + $Br_2$ <-> $ClO_4^-$ + $Br^-$

a. In acidic solution

b. In basic solution

$CoCl_2(g)$ ---> $CO(g) + Cl_2(g)$
Calculate at 127 C the Delta G
Calculate the Temperature when the above reaction is at equilibrium (Delta G = 0)
What temperature range is this reaction spontaneous?

Find the molality, mass %, and molarity of a solution with 0.63g NaOH in 10mL of water where the final volume is 12.4mL.

Find the freezing point and boiling point of H2O with 42g C6H12O6 dissolved in 300g H2O. Kf H2O = 1.86 C/molal Kb H2O=0.51C/molal

Find Kc, Kp
1Co + 2H~> 1 CH2OH @equilibrium (T= 625K) Pch3oh = 0.93atm Pco= 4.52atm Ph2 = 6.391 atm

1.Which type of intermolecular attractive forces operates between a. all molecules, b. Polar molecules, c. the hydrogen atom of a polar bond and a nearby small electronegative atom?
4. Calculate the vapor pressure of water above a solution prepared by dissolving 35.0 of Glycerin (c3H8O3) in 125 g of water @ 344K.
6. Draw and name 3 structural isomers of C5H10.
7. Balance: CN-(aq) --> CNO-(aq) acid
8. Calculate Potential
(Zn(s),Zn2+);(Ni(s), Ni2+(aq))
9. Write the equilibrium expression for Kc for the following reactions:
a. 2 O3(g) --> 3 O2 (g)
b. 2 NO(g) + Cl2 (g) --> 2 NoCl (g)
c. Ag+(aq) + 2NH3 (aq0 --> Ag(NH3)2+(aq)
10. Calculate: A 1.000-L flask is filled w/ 1.000 mol of H2 and 2.000mol of I2 @448C the value of the equilibrium constant Kc for the reaction
H2 (g) + I 2(g) --> 2 HI(g)
@448C is 50.5. What are the equilibrium concentrations of H2, I2 and HI in moles per L.

11. Complete the following table

| [H+] | [OH-] | pH | pOH | Acidic or Basic |
|---|---|---|---|---|
| 7.5 x 10-3M | | | | |
| | 3.6x 10 -10M | | | |
| | | 8.25 | | |
| | | | 5.70 | |

9. A 1.500-L solution saturated @ 25C w/calcium oxalate (CaC2O4) contains 0.0061g of Ca+2. Calculate the solubility-product constant for this salt @ 25C.

10. Predict the products and then balance the following reaction:
226-Ra -->

Calculate the molality, mass %, and molarity of a soluition made by adding .15 g HCl in 10 mL water ( final V of water is 10.4 mL)

name all intermolecular forces and an example of each.

Draw a phase diagram showing 3 states and 6 phase changes.

.506 kg ice at 0*C is added to a calorimeter containing 315. mL of water at 20.2 will any ice remain after equilibrium is estabilished.

Name the conj. base and acid of $H_2PO_4^-$

Define semiconductors, insulator, and superconductor.

Name 3 examples of materials for medicine.

A container is filled with 4.1 atm of NH3 (aq) and 1.6 atm of HCl(aq) at 297.0 K at equilibrium? P(tot) = 3.0 atm. Calc Kp?

What intermolecular forces do these ions have? NO H2O NaCl

Calc the FP and BP of H2O with 16.0g of NaCl dissolved in 850. g H2O?
Delta Tf= -iKfm Delta Tb= iKbm

N2O4 (g) <--> 2NO2 (g) Kp= .025 @298 K
Calc equil. P of both gases when initially PN2O4=.040 atm

1. 

   A. Name the structure
   B. Name the three other simple hydrocarbon groups this structure is not named after
   C. Write the molecular and condensed formula of this structure

D. What IMF's does it have?
E. Is it a weak or strong molecule?

2. NaBr

A. Name the acid and base and tell what the solution is

B. Calculate the molarity by adding 0.45 grams of NaBr to a solution with a final volume of 19.8ml

C. Calculate the F.P. and B.P. of H2O with 0.45 grams of NaBr dissolved in 500g of H2O.

3. The rate constant for a particular second order reaction is 1.67 M/S. If the initial concentration is 0.78 mol/L and it takes 3 seconds, what does the concentration change to?

5.

A.150ml of 0.020M Pb(NO3)2 is mixed with 20ml of 0.05M Na2SO4. What is the molarity of Pb(NO3)2 and Na2SO4?

B. Will PbSO4 precipitate? Explain. Ksp of PbSO4 is 6.3e-7

C. Is PbSo4 acidic or basic? Explain

6. If 244-Pu (atomic number 94) undergoes a beta emission, what is produced? What is the product if it undergoes an alpha emission? Gamma emission? Positron emission?

7. Balance in a basic solution: $\longrightarrow$ H2O2(aq) + ClO2 (aq) $\rightarrow$ ClO2 (aq) + O2(g)

8) Is the condensation of methanol exothermic or endothermic?

9) In the reaction PbCO3(s)àPbO(s) +CO2(g). Calc delta H, delta S, and delta G at 298K. What temperature will the rxn be spontaneous?

10) Name two ways to prevent corrosion.

11) Name the six phase changes.

12) Define adhesion and cohesion.

13) 0.506 kg of ice at 0 degrees C is added to a calorimeter containing 315mL of water at 20.2 C, will any ice remain after equilibrium? Delta fusion=6.01kJ SH=4.184J/gK

14) Give two compounds with dipole-dipole interactions.

15) Give an example of a super conductor.

16) Calc the Fp and Bp pf H2O w/ 30.0g of C2H12O6 dissolved in 200 g of H2O. KfH20=1.86 C/molal KbH2O=.51 C/molal

17) Is CH3COONa(aq) acidic or basic?