

## CH302 Random Musings—A very brief getting close to V-Day edition

1. We have a quiz today and I want to cover acid/base calculations well, so this musings will be brief.
2. There is a first exam next week. The 30 question types for the exam are posted below—they differ somewhat from the rough draft I posted last week. Details for exam administration, including the times and locations, will be provided on Tuesday. But be aware, that by last name, you will route yourself to a classroom next Wednesday evening for an exam that runs from 7:30 till 9:00 pm.

By the way, do you really think it would be that hard to memorize these question types so that you could organize in your head what you need to be studying for the exam?

### Physical Equilibria

- 1 temperature dependence of phase changes
- 2 vapor pressure theory
- 3 salt dissociation in water
- 4 phase diagram interpretation
- 5 phase diagram navigation
- 6 calculating  $\Delta H$  across phases transitions
- 7 gas solubility in liquids
- 8 ranking miscibility of liquids
- 9 Clausius Clapeyron equation
- 10 Van't Hoff factor and colligative properties
- 11 colligative property application
- 12 colligative property calculation
- 13 colligative property calculation

### Chemical Equilibria

- 14 setting up  $K$  from equilibrium expression
- 15 appreciating the magnitudes of  $K$

- 16 calculating equilibrium concentrations from  $K$
- 17 determining reaction direction from  $Q$  and  $K$
- 18 LeChatelier and reaction direction
- 19 LeChatelier and reaction direction
- 20 Van't Hoff equation and  $T$  dependence of  $K$
- 21 relationship of  $\Delta G$  to  $K$

### Introduction to Water Equilibria

- 22 theory of auto-protolysis of water
23. temperature dependence of  $K_w$
24. molar solubility calculation
25. ranking solubilities based on  $K_{sp}$  values
26. converting between  $pH$ ,  $pOH$ ,  $[H^+]$  and  $[OH^-]$
27. ranking acidity and basicity from  $K_a$  and  $K_b$
28. strong acid or base calculation
29. weak acid or base calculation
30. weak acid or base calculation

3. I have moved my Thursday 10 am office hours over to UTC 3.102 to provide more seating.
4. Many of you need to take a make-up because of a conflict with lab, lecture, work, etc. Don't sweat it. Simply make arrangements to come to the make-up to be given from 6 till 7:30 on Sunday. I do not need to approve your taking the make-up so no e-mail to me is necessary.
5. I will hold a review session on the 30 question types this Sunday evening from 6 until 7 pm in this classroom. For those of you new to the class, this is a very good way to use 60 minutes as I will, question type by question type, introduce you to what you should expect to see and be able to do on the exam.
6. Calculators and the exam. Although quizzes remain calculator free, you will be able to use a calculator on the exam. You should still expect to see a lot of questions that are constructed to be solved without a calculator, but there will also be some of the more traditional "plug and chug" variety that would benefit from having your calculator. I don't care what type you use. Also, please remember to bring your calculator—while we may have a few extras at the exam site, there aren't many to hand out and there is no guarantee you will get one.
7. Practice exams. The TAs and I will each write a practice exam. I will write and post mine in the ChemPortal by Saturday and the TAs will write one that I will post on my web site by early next week. These practice exams will serve as the "worksheets" for the coming week.

8. Where is that love poetry? I know that most of you don't believe in love or would rather just study for a test, but remember that I am taking love poetry dedications and actual written love poetry for next Tuesday's musings. If you remember, please send it to me over the weekend.

9. In the mean time, here is love poetry written by famous people who are poetry for a living.

### **Oranges By Gary Soto**

The first time I walked  
With a girl, I was twelve,  
Cold, and weighted down  
With two oranges in my jacket.  
December. Frost cracking  
Beneath my steps, my breath  
Before me, then gone,  
As I walked toward  
Her house, the one whose  
Porch light burned yellow  
Night and day, in any weather.  
A dog barked at me, until  
She came out pulling  
At her gloves, face bright  
With rouge. I smiled,  
Touched her shoulder, and led  
Her down the street, across  
A used car lot and a line  
Of newly planted trees,  
Until we were breathing  
Before a drugstore. We  
Entered, the tiny bell  
Bringing a saleslady  
Down a narrow aisle of goods.  
I turned to the candies  
Tiered like bleachers,  
And asked what she wanted -  
Light in her eyes, a smile  
Starting at the corners  
Of her mouth. I fingered  
A nickel in my pocket,  
And when she lifted a chocolate  
That cost a dime,  
I didn't say anything.  
I took the nickel from  
My pocket, then an orange,  
And set them quietly on  
The counter. When I looked up,  
The lady's eyes met mine,  
And held them, knowing  
Very well what it was all  
About.  
Outside,  
A few cars hissing past,

Fog hanging like old  
Coats between the trees.  
I took my girl's hand  
In mine for two blocks,  
Then released it to let  
Her unwrap the chocolate.  
I peeled my orange  
That was so bright against  
The gray of December  
That, from some distance,  
Someone might have thought  
I was making a fire in my hands.

### **Sonnet #18 William Shakespeare**

Shall I compare thee to a Summer's day?  
Thou art more lovely and more temperate:  
Rough winds do shake the darling buds of May,  
And Summer's lease hath all too short a date:  
Sometime too hot the eye of heaven shines,  
And oft' is his gold complexion dimm'd;  
And every fair from fair sometime declines,  
By chance or nature's changing course untrimm'd:  
But thy eternal Summer shall not fade  
Nor lose possession of that fair thou owest;  
Nor shall Death brag thou wanderest in his shade,  
When in eternal lines to time thou growest:  
So long as men can breathe, or eyes can see,  
So long lives this, and this gives life to thee.

### **How Do I Love Thee?**

#### **Elizabeth Barrett Browning**

How do I love thee? Let me count the ways.  
I love thee to the depth and breadth and height  
My soul can reach, when feeling out of sight  
For the ends of being and ideal grace.  
I love thee to the level of every day's  
Most quiet need, by sun and candle-light.  
I love thee freely, as men strive for right.  
I love thee purely, as they turn from praise.  
I love thee with the passion put to use  
In my old griefs, and with my childhood's faith.  
I love thee with a love I seemed to lose  
With my lost saints. I love with the breath,  
Smiles, tears, of all my life; and, if God choose,  
I shall but love thee better after death.

**Love Not Me by John Wilbye**

Love not me for comely grace,  
For my pleasing eye or face,  
Nor for any outward part:  
No, nor for a constant heart!  
For these may fail or turn to ill:  
Should thou and I sever.  
Keep, therefore, a true woman's eye,  
And love me still, but know not why!  
So hast thou the same reason still  
To dote upon me ever.

**My Love Is Like To Ice by Edmund Spenser**

My love is like to ice, and I to fire:  
How come it then that this her cold is so great  
Is not dissolved through my so hot desire,  
But harder grows the more I her entreat?  
Or how comes it that my exceeding heat  
Is not allayed by her heart-frozen cold,  
But that I burn much more in boiling sweat,  
And feel my flames augmented manifold?  
What more miraculous thing may be told,  
That fire, which is congealed with senseless cold,  
Should kindle fire by wonderful device?  
Such is the power of love in gentle mind,  
That it can alter all the course of kind.

**She Walks In Beauty Lord Byron**

She walks in beauty, like the night  
Of cloudless climes and starry skies;  
And all that's best of dark and bright  
Meet in her aspect and her eyes:  
Thus mellow'd to that tender light  
Which heaven to gaudy day denies.  
One shade the more, one ray the less,  
Had half impair'd the nameless grace  
Which waves in raven tress,  
Or softly lightens o'er her face;  
Where thoughts serenely sweet express  
How pure, how dear their dwelling place.  
And on that cheek, and o'er that brow,  
So soft, so calm, yet eloquent,  
The smiles that win, the tint that glow,  
A mind at peace with all below,  
A heart whose love is innocent!

**Love by Samuel Taylor Coleridge**

And in Life's noisiest hour,  
There whispers still the ceaseless Love of Thee,  
The heart's Self-solace and soliloquy.  
You mould my Hopes, you fashion me within;  
And to the leading Love-throb in the Heart  
Thro' all my Being, thro' my pulse's beat;  
You lie in all my many Thoughts, like Light,  
Like the fair light of Dawn, or summer Eve  
On rippling Stream, or cloud-reflecting Lake.  
And looking to the Heaven, that bends above you,  
How oft! I bless the Lot that made me love you.

**Longing by Matthew Arnold**

Come to me in my dreams, and then  
By day I shall be well again!  
For then the night will more than pay  
The hopeless longing of the day.  
Come, as thou cam'st a thousand times,  
A messenger from radiant climes,  
And smile on thy new world, and be  
As kind to others as to me!  
Or, as thou never cam'st in sooth,  
Come now, and let me dream it truth;  
And part my hair, and kiss my brow,  
And say: My love! why sufferest thou?  
Come to me in my dreams, and then  
By day I shall be well again!  
For then the night will more than pay  
The hopeless longing of the day.

**A Red, Red Rose Robert Burns**

O my luv'e's like a red, red rose,  
That's newly sprung in June;  
O my luv'e's like the melodie  
That's sweetly play'd in tune  
As fair art thou, my bonie lass,  
So deep in luv'e am I;  
And I will luv'e thee still, my Dear,  
Till a' the seas gang dry.  
Till a' the seas gang dry, my Dear,  
And the rocks melt wi' the sun;  
I will luv'e thee still my Dear,  
While the sands o' life shall run.  
And fare thee weel, my only Luv'e,  
And fare the weel, a while!  
And I will come again, my Luv'e,

### **A Friend Like You by Author Unknown**

There's lots of things  
With which I'm blessed,  
Tho' my life's been both Sunny and Blue,  
But of all my blessings,  
This one's the best:  
To have a friend like you.

In times of trouble  
Friends will say,  
"Just ask, I'll help you through it."  
But you don't wait for me to ask,  
You just get up  
And do it!

And I can think  
Of nothing in life  
That I could more wisely do,  
Than know a friend,  
And be a friend,  
And love a friend... like you.

### **Stanza for Music by Lord Byron**

They say that Hope is happiness;  
But genuine Love must prize the past,  
And Memory wakes the thoughts that bless;  
They rose the first- they set the last;

And all that Memory loves the most  
Was once our only Hope to be,  
And all that Hope adored and lost  
Hath melted into Memory.

Alas! it is delusion all:  
The future cheats us from afar,  
Nor can we be what we recall,  
Nor dare we think on what we are.

### **Come Slowly by Emily Dickinson**

Come slowly, Eden  
Lips unused to thee.  
Bashful, sip thy jasmines,  
As the fainting bee,  
Reaching late his flower,  
Round her chamber hums,  
Counts his nectars -alights,  
And is lost in balms!

### **Counting the Beats by Robert Graves**

You, love, and I,  
(He whispers) you and I,  
And if no more than only you and I  
What care you or I?

Counting the beats,  
Counting the slow heart beats,  
The bleeding to death of time in slow heart beats,  
Wakeful they lie.

Cloudless day,  
Night, and a cloudless day,  
Yet the huge storm will burst upon their heads one  
day  
From a bitter sky.

Where shall we be,  
(She whispers) where shall we be,  
When death strikes home, O where then shall we be  
Who were you and I?

Not there but here,  
(He whispers) only here,  
As we are, here, together, now and here,  
Always you and I.

Counting the beats,  
Counting the slow heart beats,  
The bleeding to death of time in slow heart beats,  
Wakeful they lie.

### **Trague by Viggo Mortensen**

I swallowed the reel  
And the rod  
And the faith that  
So sweetly I had  
The afternoon of the day  
That I met you  
I saw myself in your eyes  
And in your arms  
And an entire lifetime  
In your lips I lived  
The afternoon of the day  
That I met you.

