

Random Musings February 25, 2009—A brief pre-exam offering

1. There is a first exam coming up tonight. I have provided the question types for it below. A format and procedure for exam 1 is found in last week's musings. But some highlights of ways in which the exam procedure may be different than last semester:

- The exam will be Thursday evening from 7:30 till 9:30 pm. You get 120 minutes, sharp.
- Room locations: Last name A-L will be in BUR 106. Last name M-Z will be in Welch 2.224.
- You will be given a sheet of equations and constants and a periodic table.
- This is a calculator-free exam. No electronic devices are to be used during the exam, and you may not be in possession of any electronic devices while the exam is in progress.
- A make-up exam will be given the following Sunday evening from 6 to 8:00 pm in Welch 2.224. I will not police who takes the make-up exam, but obviously, if you start the regular exam you must finish it and turn it in.

2. Here are the question types 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 ΔH 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 binary mixture and Raoult's Law
- 12 colligative property calculation
- 13 colligative property calculation

Chemical Equilibria

- 14 setting up K from equilibrium expression
- 15 calculating equilibrium concentrations from 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 ΔG 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. There will be two practice exams, each of which can be done in a calculator-free manner. I will post the first practice exam in the ChemPortal late Friday evening. I posted the second practice exam on Sunday in the Answers link of my web site.
4. An extended discussion section will be offered this evening after class.
 - Travis will be available in the cubicles after class from 3:30 till 5 pm.
 - Tiffany will be available from 5 till 7 pm in Calhoun 100 from 5 to 7 pm. Note that this is a one-time only room change and substitutes for the academic community as well. Basically you can hang out there working problems and asking questions all the way up till the exam.
5. Remember that the material on buffers, neutralization and titration are NOT on exam 1. For exam 1 you merely need to be able to effortlessly work the simple monoprotic case for both strong and weak acids and bases.
6. With considerable apology I have to tell you that the audio for my video lectures the last 10 days has not worked. If I told you the reason was a bad sound card, you probably wouldn't be all that impressed since I know many of you rely on this service and have to expect that it will be reliable. I have had numerous conversations about this with the folks who provide the service and they are working hard to make sure it is a reliable way to view course lectures.
7. Valentine's Day poetry drags on—more poetry by your peers—some nice, some mean, some creepy.

Jessica

Such beauty, such a smile
You make a fella wonder
What's yo sign?
And can I have yo number?
The object of my infatuation
Is your soul, I must confess.
Like the pH in a titration,
Do you know me, can you guess?
It doesn't make sense at all,
And I feel like a fool.
Our love must happen,
Its ΔG is $-10,000$ kJ!
For two semesters, I've been sitting
Here in this very seat
Admiring you, let's get exothermic,
Let's generate some heat.
My hopes of being with you
Are deflated and flaccid.
Don't leave, don't dissociate from me
Like one of the seven strong acids.
I'll never smart enough for you,
I have no brains, only brawn,
But I want to be part of your equation,
Be your Clausius Claperon.
I'd take you as my own,
From a señorita to a señora.
But first, I must learn this dumb chemistry:
I brought a clay clover to Sephora...

You and Me could write a *Bad Romance*

Hush now Devin, just listen as my lips speak,
Travis means nothing to me, it is you I seek,
Each and everyday, my body longs for your TA sessions,
And when the time comes, I stay as long as I can, lingering with questions.
You smile as you explain thermo and ΔG ,
Feeling brave, I ask you if you could explain more over coffee or tea,
Kindly you decline and go about your beautiful way,
I couldn't help but follow you.....

[The next four lines were edited out for creepiness]

And I've got more than a few years of college left to go,
But do not fret, my sweet, sweet boy,
Next year when I become Dr. Laude's new TA, together we can jump for joy.

Valentines Day

Personal sentiment, hand to hand held,
Kisses and hugs (because sensitive sells),
Roses and cards we will send,
Though it's all about sex in the end,
But if he gets what he wants all is well.
She wants to think that she knows what she needs,
Showered with words, wowed with gestures and deeds,
That smack of love unceasing;
Naught but unknowingly increasing
The stock value of chocolate companies.
It will end in decay, just like always, the same;
Like severed plant genitals—what's in a name?
Your love's a faux, an ideal
A trick, dance, war, dross, joy, plot, shell, a spiel,
We just want sex, don't make it a game.

There is a girl blabbing nothing outside my window
What do I have to show
To a world that the only way to destroy
Is to die like a baby boy
I could be happy in infinity
Of the space of my eyelid
But I know I'm somewhere else
Where the words on this page
Are better than the scribbling nonsense they are
And it would be real,
And I eat my last meal
Wish that I could feel
But now I don't even know if I'm real

A dove is a glove
That I wear in my heart
And though I like to dress smart
It doesn't have any part of the world of fashion
And you're there to put me down
And I'm sick of the frowns that follow me around
I would like the sky but there's no reason why
Shed say to this world with the nose of a girl
Turned up so loud that IT SINGS STEALS THE CLOUDS
I've never been here and though you're physically near
You're pushing me away to decay like the days that I loved

**From a girl's bathroom at Burdine
Hall**

By the time you swear you're his
Shivering and Sighing
And he vows his passion is
Infinite -- Undying
Lady make a note of this
One of you is lying

Hollow

Don't look at me
with those piercing eyes...
You can pick and probe
but you'll never hear
my smothered cries.
Don't look too deep---
you'll waste yourself,
for there's nothing to see
but an empty shell.
Don't stare too intently
into the void.
Like a black hole, the darkness
you can't avoid.
I can see you straining
to find the sparkle in my eye.
But it's been washed away so long ago
and left here in the cold to dry.
There's nothing in me now...
No tears, nor fire;
No fears, nor desire.
I am hollow,
but I am sane.
I am jaded,
but I am tame.
So, don't bother trying to gaze
into the depths of my soul,
for, there is nothing there but space---
emptiness amidst the lull.
There is fog and mist
and everything is gray.

But, in the coldness
there's no emotion to give away.
You think that I
am flesh and bone
But, the truth is, I am
made of stone.
Can you not see
the nothingness inside of me?
Do you hear me complaining?
This hollowness is captivating...
mesmerizing... vindicating!
The cold has frozen my heart
and this numbness brings me peace
No sadness, no pain;
my mind finally at ease...
I may be hollow,
but I am sane.
I may be jaded,
but I am tame.
So, remember this
when next you try
to look into me
with piercing eyes.
All you will see
is the emptiness
that sets me free.