Lecture test 1 scoring and results. There are two different forms. Look at question 1. If it says X is 0.40 molar, that is test A. If it says X is 0.60 molar, that is test B. Multiple choice questions are 2 points each for a total of 54. The number right is entered at the bottom of the page, top of next page

Test A. Answers Test B answers.

1. 0.032 1. 0.072

2. 0.90 2. 0.45

3. 0.5 3. 0.5

4. C 4. C

5 B 5. D

6. A 6. D

7 D 7. C

8. B 8. A

9. C 9. C

10. C 10 A

11. A 11. D

12. HPO42- . correct charge required for ions 12. PO43- correct charge required for ions.

13. NH3 13. NH3

14. HCO3- 14. HCO3-

15. H2S 15. H3O+

16. 1.523 (1.5 was accepted) 16. 1.097. (1.1 was accepted)

17. 13.398 (14.4 accepted) 17. 13.176 ( 13.2 accepted)

18. 2.571 (2.6 accepted) 18. 2.87 (2.9 accepted)

19. 0.032 M 19. 0.0032 M

20. 1.51 x 10-5  20. 1.51 x 10-5

21. B 21 D

22. B 22. C

23. 5.6 x 10-11 23. 5.6 x 10-11

24. B 24. A

25. A 25. N

26. B 26. B

27. B 27. A

A. B.

I A. [ Pb2+][I-]2 = Ksp 1A. [Mg2+][F-]2  3 pts.

B. [I-] = 3.0 x 10-3 B, [ F-] = 2.3 x 10-3 4 pts.

C. [ I-] = 5.9 x10-4 C. [F-] = 4.0 x 10-4 3.

D. [ Pb2+] = 0.015 M, [I-] = 7.5 x 10-4 M ( 2pts) D. [ Mg2+] = 0.015 M, [F-] = 7.5 x 10-4 M (2pt)

Q = 8.4 x 10-9  4 pts. ( 2pts if I- not squared) Q = 8.4 x 10-9  4 pts. ( 2pts if I- not squared)

Q < K, no precipitation 2 pts Q >K, yes, precipitation 2 pts.

D is worth 8 points altogether. D is worth 8 points altogether.

II. CH3NH2 + H2O ⇌ CH3NH3+ + OH-

B A A B 4 points

B. The stronger acid is CH3NH3+ The low Kb means the reaction goes

Mainly to the left, so the stronger acids and bases must be on the right. 2 pts.

12.45 3 pts. 12.12 3 pts.

III. A. k = 0.101 s-1 (2 pts) k = 0.0536 s-1 2pts. ( -1 for 0.05)

T = 9.07 sec. (or consistent with k) t = 60. sec. (or consistent with k) 2 pts

B. 6.93 or 6.86 s ( or consistent with k) (2 pts) 12.9 seconds (or consistent with k) 2pts

C. The half life DECREASES, because inc T inc. k, and k and half life vary inversely ( 2 pts)

IV. A. Ka = 3.97 x 10-8 (4) pts. Ka = 1.58 x 10-6 ( 4 pts)

B. 1.19 x 10-7 M (6 pts) B. 4.76 x 10-6 M ( 6 pts)

You needed to write the equation for the reaction HA + OH- → H2O + A-

0.0040 0.0010 0

**BUFFER!** -0.0010 -0.0010 + 0.0010

0.0030 0.0010

C. 1.00 1.30 ( 4 points)

Median Grade was 64, Average was 59.