

CHEMISTRY

103

Subject

Final Exam - Past Years And
Suggested Questions

خاص
للفصل الدراسي الأول
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للضرورة

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Price

25



أكاديمية القصور

ننتهز الفرصة لنعلمكم بأن شرح المادة

قد تكون بالشابتر الواحد او المادة كاملة او مراجعة

او حل أسئلة سنوات سابقة و مقترحة

و باتنا و كما عهدتمونا دائما على أهبة الاستعداد

لتقديم دورات مساندة في التخصصات

الطبية و الهندسية و العلمية

مع نخبة من المحاضرين المتميزين

للتسجيل إرسال رسالة قصيرة الى الرقم 0785706008

على ان تحتوي (اسم الطالب ، المادة ، التخصص ، رقم خنوي الطالب)

مع ترسم خطوط النجاح والتفوق ...

تكون حاته للافتحان للرسائل من 14 و 15 و 17 Chapter بالاصناف
الى جزء من الاسئلة .

1. Calculate the pH of a 0.40 M NH_4Cl solution [K_b for $\text{NH}_3 = 1.8 \times 10^{-5}$]

A) 1.8 B) 9.18 C) 4.83 D) 0.86

2. Calculate the pH of 2.8×10^{-4} M $\text{Ba}(\text{OH})_2$?

A) 9.30 B) 10.75 C) 3.26 D) 11.45

3. Calculate the pH of 5.2×10^{-4} M HNO_3 ?

A) 3.28 B) 10.24 C) 10.72 D) 2.26

4. What is the percent of ionization for 0.25M acidic solution of pH=3.6?

A) 0.33% B) 0.10% C) 0.46% D) 0.76%

5. Find pH for a solution prepared by dissolving 2.5 g of $\text{Ca}(\text{OH})_2$ (M.wt=74g/mol) in enough water to get 200ml of solution?

A) 7.90 B) 0.47 C) 13.53 D) 12.66

6. The conjugate base of HSO_3^- is?

A) SO_3^{2-} B) H_2SO_3 C) H_2SO_4 D) SO_4^{2-}

مستقرين بالقطر

7. The conjugate acid of CO_3^{2-} is?
 A) CO_3^{2-} B) H_2CO_3 C) HCO_3^- D) HCO_3^{2-}
8. Calculate the pH of 0.55 M solution of HClO. [K_a of 1.99×10^{-9}]?
 A) 9.28 B) 4.48 C) 6.62 D) 5.18
9. Calculate the ionization constant (K_a) of a 0.015 M HA solution, that is 0.14% ionized?
 A) 2.5×10^{-9} B) 2.9×10^{-8} C) 3.0×10^{-10} D) 7.1×10^{-6}
10. Which solution below has the lowest concentration of hydroxide ions $[\text{OH}^-]$?
 A) pH = 3.21 B) pH = 12.59 C) pH = 7.93 D) pH = 9.82
11. Of the following, which is a weak acid?
 A) HClO B) HClO_4 C) HNO_3 D) HBr
12. Arrange the following in order of basicity (highest to lowest)?
 I) $\text{p}K_a = 2.2$ II) $K_a = 4.0 \times 10^{-5}$ III) $\text{p}K_a = 4.6$
 A) I > II > III B) III > II > I C) II > I > III D) II > III > I
13. Which one of the following would be considered a base according to the Bronsted-Lowry definition but not by the Arrhenius definition?
 A) NH_3 B) HBr C) $\text{Ba}(\text{OH})_2$ D) HF
14. Which one of the following is a Bronsted-Lowry acid?
 A) $(\text{CH}_3)_3\text{NH}^+$ B) CH_3COOH C) HF D) all of these
15. K_2HPO_4 is?
 A) Acidic B) Basic C) Neutral D) No enough information
16. $\text{K}_2\text{HPO}_4/\text{H}_2\text{PO}_4$ is called?
 A) Buffer B) not buffer C) acidic D) neutral
17. The effect of common ion is?
 A) enhance acidity B) suppress the ionization of weak acid
 C) increase $[\text{H}^+]$ D) lower basicity
18. One liter of an aqueous solution contains 6.022×10^{23} H_3O^+ ions. The pH of this solution is?
 A) 0 B) 1 C) 2 D) 3
19. If the salt NaHCO_3 is dissolved in pure water, the solution will be?
 A) Acidic B) Basic C) Neutral D) Don't know
20. Calculate the $[\text{OH}^-]$ in a $\text{Ca}(\text{OH})_2$ solution with a pH of 11.35?
 A) 1.27 B) 1.9×10^{-13} C) 4.48×10^{-3} D) 2.3×10^{-12}



21. Which one of the following is the weakest acid?

- A) HF ($pK_a = 0.68$) B) HClO ($K_a = 3.0 \times 10^{-8}$)
C) HNO_2 ($K_a = 4.5 \times 10^{-4}$) D) HCN ($pK_a = 0.49$)

22. What is the % ionization of (HClO) acid in a 0.03 M solution? ($K_a = 3.7 \times 10^{-9}$)?

- A) 0.05% B) 14% C) $2.1 \times 10^{-2}\%$ D) 0.035%

23. The pH of a 0.55 M solution of HBrO is 4.48. What is the value of K_a for HBrO?

- A) 2.0×10^{-2} B) 2.0×10^{-9} C) 1.4×10^{-4} D) 1.5×10^{-5}

24. For 2.5×10^{-7} Ca(OH)₂ solution. What is the $[H^+]$?

- A) 1.0×10^{-6} B) 2.0×10^{-8} C) 3.0×10^{-15} D) 5.2×10^{-16}

25. Calculate the pOH of 0.08 M NaCN solution, (for HCN, $K_a = 4.9 \times 10^{-10}$)?

- A) 9.31 B) 11.10 C) 2.89 D) 1.08

26. Calculate the pH of a solution made by dissolving 1.87 g of $NaC_6H_{11}O_2$ (138g/mol) ($K_b = 7.6 \times 10^{-10}$) in water and diluting to a total volume of 500 mL?

- A) 5.34 B) 8.66 C) 5.49 D) 8.50

27. Determine the pH of a 0.35 M solution of CH_3NH_2 . The K_b is 4.4×10^{-4} ?

- A) 10.19 B) 3.81 C) 12.09 D) 1.91

28. Of the following four substances, which would form basic solutions?

- | | | | |
|----------------------------|-------------------|--------------|-----|
| NH_4Cl | $Cu(NO_3)_2$ | NaCN | NaF |
| A) NH_4Cl , $Cu(NO_3)_2$ | B) NaCN, NH_4Cl | | |
| C) NaF only | | D) NaF, NaCN | |

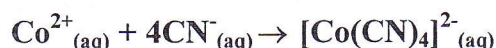
29. Which one of the following 0.1 M solutions would have a pH of 7.0?

- A) NaOCl B) KCl C) NH_4Cl D) $Ca(OAc)_2$

30. Which one of the following 0.1 M solutions would have the highest pH?

- A) KCN (K_a HCN = 4.0×10^{-10}) B) NH_4NO_3 (K_b $NH_3 = 1.8 \times 10^{-5}$)
C) NaOAc (K_a HOAc = 1.8×10^{-5}) D) NaClO (K_a HClO = 3.2×10^{-8})

31. Identify the Lewis base in the following equation?



- A) CN^- B) Co^{2+} C) $[Co(CN)_4]^{2-}$ D) Cu

32. Calculate the K_b for an unknown HF given that a solution of 0.10 M HF has a pH of 8.9?

- A) 7.9×10^6 B) 6.31×10^2 C) 6.2×10^{-18} D) 1.6×10^{-17}

33. Calculate the mass of NaOH solution (40g/mol), prepared by 300 ml at pH 4.5?

- A) 3.8×10^4 B) 6.4×10^{-2} C) 3.8×10^{-9} D) 2.9×10^{-7}

34. Which one of the following is a buffer solution?

- A) 0.40 M HCN and 0.10 KCN
B) 0.20 M CH₃COOH
C) 1.0 M HNO₃ and 1.0 M NaNO₃
D) 0.10 M KCN

35. Calculate the pH of a buffer solution that contains 0.25 M (C₆H₅CO₂H) and 0.15M (C₆H₅COONa). [K_a = 6.5 × 10⁻⁵ for C₆H₅CO₂H]

- A) 3.97 B) 4.8 C) 4.19 D) 3.40

36. A solution is prepared by mixing 500 mL of 0.10 M NaOCl and 500mL of 0.20 M HOCl. What is the pH of this solution? [K_a(HOCl) = 3.2 × 10⁻⁸]

- A) 4.10 B) 7.0 C) 7.19 D) 7.49

37. Calculate the pH of a buffer solution prepared by dissolving 0.20 mole of HCNO and 0.80 mole of NaCNO in enough water to make 1 liter of solution. K_aHCNO = 2.0 × 10⁻⁴?

- A) 0.97 B) 3.10 C) 4.30 D) 3.70

38. 500mL of a buffer solution containing 0.2M (CH₃COOH) and 0.30M (CH₃COONa) what will the pH of this solution be after the addition of 20mL of 1 M NaOH solution? [K_a = 1.8 × 10⁻⁵]

- A) 4.41 B) 4.74 C) 4.56 D) 5.07

39. A solution is prepared by mixing 400 mL of 0.20 M KCN, with 200mL of 0.20M HCl, [K_a(HCN)=3.2 × 10⁻⁸]. Then:

- A) pH=1/2 pKa B) pH=1/4 pKa C) pH= pKa D) pH=2 pKa

40. Calculate the pH of a buffer solution containing 3mmol (NH₄Cl) and 3mmol (NH₃) what will the pH of this solution be after the addition of 10mL of 0.15 M HCl solution? [K_b = 1.8 × 10⁻⁵]

- A) 8.78 B) 5.22 C) 3.97 D) 5.14

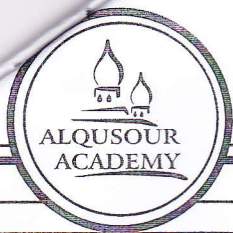
For the following questions (41&42):

Ascorbic acid (H₂A) is a diprotic acid with two ionization equilibria:



41. Calculate the pH in a 0.10M H₂A solution?

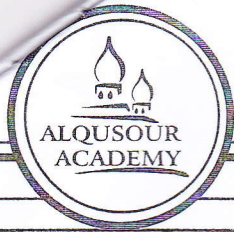
- A) 0.10 B) 11.45 C) 4.0 D) 2.55



42. What is the concentration of A^{2-} ion in a 0.10 M H_2A ?
A) 8.0×10^{-5} B) 7.5×10^{-5} C) 1.6×10^{-12} D) 0.10
43. A reaction at 250 C is 1.50×10^3 times faster than at 150 C .the activation energy (KJ mole⁻¹) of reaction is?
A) 135 B) 270 C) 31.0 D) 185
44. The rate constant for reaction at 305.0 K is two times the rate constant at 295.0 K. the activation energy (KJ mol⁻¹) of reaction is?
A) 36.2 B) 21.7 C) 72.9 D) 51.8
45. The frequency factor and energy of activation of a reaction are $8.7 \times 10^{12} \text{ s}^{-1}$ and 63 KJ mol⁻¹ .the rate constant of reaction at 75 C is?
A) 7.2×10^{-2} B) 1.8×10^{-2} C) 5.4×10^{-3} D) 3×10^3
46. at 350 K. a particular second order reaction, consisting of single reactant A, has a rate constant equal to $4.5 \times 10^{-3} \text{ M}^{-1} \text{ s}^{-1}$.if the intial reaction of A 0.8 M ,how many half lives are required for the concentration of A to become equal to 0.1M?
A) 1 B) 2 C) 3 D) 4
47. what is the half life for the reaction assuming first order kinetics if 75 % of the reactant decompose in 60 minutes?
A) 120 min B) 15 min C) 90 min D) 30 min
48. which of the following would decrease the rate of chemical reaction?
A) increase the concentration of reactant
B) increasing the temperature
C) adding a catalyst
D) none of these will decrease the rate



Question No.	Answer	Question No.	Answer
1	C 4.83	13	A NH ₃
2	B 10.75	14	D all of these
3	A 3.28	15	B Basic
4	B 0.1%	16	A Buffer
5	C 13.53	17	B suppress the ionization of weak acid
6	A SO ₃ ²⁻	18	A 0
7	C HCO ₃ ⁻	19	B Basic
8	B 4.48	20	C 4.48x10 ⁻³
9	B 2.9 x 10 ⁻⁸	21	D HCN (pKa = 0.49)
10	A pH = 3.21	22	D 0.035%
11	A HClO	23	B 2.0x10 ⁻⁹
12	B III > II > I	24	B 2.0 x 10 ⁻⁸



Question No.	Answer	Question No.	Answer
25	C 2.89	35	A 3.97
26	B 8.66	36	C 7.19
27	C 12.09	37	C 4.30
28	D NaF, NaCN	38	D 5.07
29	B KCl	39	C pH= pKa
30	A KCN ($K_a \text{ HCN} = 4.0 \times 10^{-10}$)	40	A 8.78
31	A CN ⁻	41	D 2.55
32	B 6.31×10^{-9}	42	C 1.6×10^{-12}
33	C 3.8×10^{-9}	43	A 135
34	A 0.40 M HCN and 0.10 KCN	44	D 51.8

Question No.	Answer	Question No.	Answer
45	D 3×10^3	47	D 30 min
46	C 3	48	D None of these will decrease the rate

للاستفسار رعد إجابات : م. سدي جبريه . ٧٨٦٢ ٥٤ ٦٤ .
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الآن يمكنكم معرفة التلاخيص المطروحة لحظة إصدارها
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