

Faculty Submitting: _Grinias_____

Specify here whether “Pre” or “End” of Unit and the Unit #: ____End Unit 13_____

- Add wrong answers to these, also may be to easy/google-able

Unit 13_ Question 1	Canvas Question Type: Multiple Choice or Drop Down
	Question Text: What is the conjugate base of H ₂ S?
	Correct Answer: HS ⁻ Wrong Answers:
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Unit 13_ Question 2	Canvas Question Type: Multiple Choice or Drop Down
	Question Text: What is the conjugate acid of H ₂ PO ₄ ⁻ ?
	Correct Answer: H ₃ PO ₄ Wrong Answers:
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Unit 13_ Question 3	Canvas Question Type: Multiple Choice or Drop Down
	Question Text: What is the conjugate base of H ₂ PO ₄ ⁻ ?
	Correct Answer: HPO ₄ ²⁻ Wrong Answers:
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Unit 13_ Question 4	Canvas Question Type: Multiple Choice or Drop Down
	Question Text: What ion forms when water acts as a Brønsted-Lowry acid?
	Correct Answer: OH ⁻ Wrong Answers:
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Unit 13_ Question 5	Canvas Question Type: Multiple Choice or Drop Down
	Question Text: What ion forms when water acts as a Brønsted-Lowry base?
	Correct Answer: H ₃ O ⁺ Wrong Answers:

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Unit 13_ Question 6	Canvas Question Type: Multiple Answers/Checkbox
	Question Text: Which of the following species are amphiprotic? (Select all that apply)
	Correct Answers: NH_3 , HPO_4^- Wrong Answers: Br^- NH_4^+ ASO_4^{3-}
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Unit 13_ Question 7	Canvas Question Type: Numerical Answer
	Question Text: The ionization constant for water (K_w) is 2.9×10^{-14} at 40°C . Calculate the pH of pure water at 40°C .
	Correct Answer: 6.77 Margin: +/- 0.1
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Unit 13_ Question 8	Canvas Question Type: Numerical Answer
	Question Text: The ionization constant for water (K_w) is 2.9×10^{-14} at 40°C . Calculate the pOH of pure water at 40°C .
	Correct Answer: 6.77 Margin: +/- 0.1
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Unit 13_ Question 9	Canvas Question Type: Formula Question
	Question Text: Calculate the pH of [a] M HCl.
	Formula: $-\log_{10}(a)$ Parameters: Let [a] = 0.100 – 0.400 M (vary by 0.001)
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Unit 13_ Question 10	Canvas Question Type: Formula Question

	Question Text: Calculate the pOH of [a] M HCl.
	Formula: $14 - \log_{10}(a)$
	Parameters: Let [a] = 0.100 – 0.400 M (vary by 0.001)
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Unit 13_ Question 11	Canvas Question Type: Formula Question
	Question Text: Calculate the pH of [a] M NaOH.
	Formula: $14 - \log_{10}(a)$
	Parameters: Let [a] = 0.100 – 0.400 M (vary by 0.001)
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Unit 13_ Question 12	Canvas Question Type: Formula Question
	Question Text: Calculate the pOH of [a] M HCl.
	Formula: $-\log_{10}(a)$
	*think this should be $14 - \log(a)$
	Parameters: Let [a] = 0.100 – 0.400 M (vary by 0.001)
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Unit 13_ Question 13	Canvas Question Type: Formula Question
	Question Text: Calculate the pH of [a] M $\text{Ca}(\text{OH})_2$, assuming the solution ionizes completely.
	Formula: $14 - \log_{10}(2 \cdot a)$
	Parameters: Let [a] = 0.010 – 0.090 M (vary by 0.001)
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Unit 13_ Question 14	Canvas Question Type: Formula Question
	Question Text: Calculate the pH of [a] M $\text{Ca}(\text{OH})_2$, assuming the solution ionizes completely.
	Formula: $-\log_{10}(2 \cdot a)$
	Parameters: Let [a] = 0.010 – 0.090 M (vary by 0.001)
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Unit 13_ Question 15	Canvas Question Type: Multiple Choice?
	Question Text: What is the ionization constant at 25 °C for the weak acid CH_3NH_3^+ , the conjugate acid of the weak base CH_3NH_2 , $K_b = 4.4 \times 10^{-4}$.
	Correct Answer: $K_a = 2.3 \times 10^{-11}$ Wrong answers:
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Unit 13_ Question 16	Canvas Question Type: Drop Down? GROUP
a	Question Text: Which of the following compounds is the most acidic in each set?
	Correct Answer: NaHSO_4 Wrong answers: NaHSO_3 , NaHSeO_3
b	Question Text: Which of the following compounds is the most acidic in each set?
	Correct Answer: HOCl Wrong answers: HOBr , HOI
c	Question Text: Which of the following compounds is the most acidic in each set?
	Correct Answer: HOClO_3 Wrong answers: HOCl , HOClO , HOClO_2 ,
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Unit 13_ Question 17	Canvas Question Type: Drop Down? GROUP
a	Question Text: Which of the following compounds is the most basic in each set?
	Correct Answer: IO_2^- Wrong answers: BrO_2^- , ClO_2^-
b	Question Text: Which of the following compounds is the most basic in each set?
	Correct Answer: NH_2^- Wrong answers: HS^- , HTe^- , PH_2^-

c	<p>Question Text: Which of the following compounds is the most basic in each set?</p>
	<p>Correct Answer: BrO⁻</p> <p>Wrong answers: BrO₂⁻, BrO₃⁻, BrO₄⁻</p>
Unit 13_ Question 18	<p>Canvas Question Type: Multiple Choice</p>
	<p>Question Text: From the equilibrium concentrations given, what is the K_b value for NH₃?</p> <p>[OH⁻] = $3.1 \times 10^{-3} M$; [NH₄⁺] = $3.1 \times 10^{-3} M$; [NH₃] = $0.533 M$;</p>
	<p>Correct Answer: 1.8×10^{-5}</p> <p>Wrong answers: 5.6×10^{-10}</p> <p>3.1×10^{-3}</p> <p>9.6×10^{-6}</p>
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Unit 13_ Question 19	<p>Canvas Question Type: Multiple Choice</p>
	<p>Question Text: From the equilibrium concentrations given, what is the K_a value for NH₄⁺?</p> <p>[NH₄⁺] = $0.100 M$; [NH₃] = $7.5 \times 10^{-6} M$; [H₃O⁺] = $7.5 \times 10^{-6} M$</p>
	<p>Correct Answer: 5.6×10^{-10}</p> <p>Wrong answers: 1.8×10^{-5}</p> <p>5.6×10^{-11}</p> <p>7.5×10^{-6}</p>
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Unit 13_ Question 20	Canvas Question Type: Multiple Choice/Drop Down GROUP
a	Question Text: Which reactant is the Lewis acid in each of the following reactions? $\text{CO}_2 + \text{OH}^- \rightarrow \text{HCO}_3^-$
	Correct Answer: CO_2 Wrong answers: OH^-
b	Question Text: Which reactant is the Lewis acid in each of the following reactions? $\text{I}^- + \text{I}_2 \rightarrow \text{I}_3^-$
	Correct Answer: I_2 Wrong answers: I^-
c	Question Text: Which reactant is the Lewis acid in each of the following reactions? $\text{O}^{2-} + \text{SO}_3 \rightarrow \text{SO}_4^{2-}$
	Correct Answer: SO_3 Wrong answers: O^{2-}
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