To get the most out of this Practice Exam:

- Feel free to use a periodic table, scrap paper, and a non-programmable calculator, but do not use your textbook or lecture notes.
- Set a timer for 50 minutes (the amount of time you'll have for the exam). When the time is up, grade yourself using the **Answer Key** on page 5. It is important to get a sense of the length of time you'll have for the exam. If you are doing well on the questions you complete, but aren't getting to the end of the practice exam, see if you can find areas where you can speed up by practicing.
- Each question is worth 5 pts. If you earn < 73% (less than a "C") you are not yet ready to pass Exam #2.
- Complete the **Practice Exam – Self Reflection** on page 6. It will help you identify your strength/weaknesses and possible resources for getting help.
- Print out one copy of **Practice Exam – Correction Template** on page 7 for each question you get wrong. Use the space on the page to analyze your mistake.
- Get help and/or extra practice with questions you don't understand.

Potentially useful information:

1 in. = 2.54 cm (exactly) 1 mile = 5280 ft 1 mile = 1.609 km	1 L = 1000 cm^3 1 gal = 4 qt 1 gal = 3.785 L	1 kg = 2.205 lb 1 lb = 16 oz 1 ton = 2000 lb
1 cal = 4.184 J 1 Cal = 1000 cal	K = °C + 273 °C = (°F – 32)/1.8	C_{water} = 4.18 J/g•°C $C_{ethanol}$ = 2.44 J/g•°C

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1) Which of the following is the formula for hydrobromic acid?
A) HBr (aq) **B)** HBrO (aq) **C)** $HBrO_2$ (aq) **D)** $HBrO_4$ (aq)

2) Which of the following ions does not have a -3 charge?
A) borate **B)** arsenate **C)** chromate **D)** phosphite

3) What is the correct name for PbS_2?
A) lead sulfide **B)** lead disulfide **C)** lead (II) sulfide **D)** lead (IV) sulfide

4) What is the correct formula for silver dihydrogen phosphate?
A) AgH_2PO_4 **B)** Ag_2HPO_4 **C)** $Ag(H_2PO_4)_2$ **D)** $Ag_3H_2PO_4$

5) What is the correct name for $(NH_4)_2S_2O_3$?
A) ammonia disulfur trioxide
B) ammonium sulfate
C) ammonium oxalate
D) ammonium thiosulfate

6) Which of the following measurements has the largest number of significant figures?
A) 1.010×10^{-8} **B)** 0.000101 **C)** 10.1 **D)** 101,000

7) Which of the following lengths is the longest?
A) 1.0×10^{-3} miles **B)** 10.0 cm **C)** 0.0010 km **D)** 1.0×10^{2} inch

8) Report the answer to this calculation with the correct significant figures:

$$4.05 + 402 + 0.006$$

A) 406 **B)** 406.1 **C)** 406.06 **D)** 406.056

9) Report the answer to this calculation with the correct significant figures: $\dfrac{594.133 + 0.002}{1.35}$

A) 4×10^{2} **B)** 4.4×10^{2} **C)** 4.40×10^{2} **D)** 440.1

10) How many μL are in 5.0×10^{-4} kL?
A) 5.0×10^{7} μL **B)** 5.0×10^{5} μL **C)** 5.0×10^{-1} μL **D)** 5.0×10^{-7} μL

11) How many cm^3 are in 3.0 qt?

A) 2.8×10^{-3} cm^3 **B)** 2.8×10^{-1} cm^3 **C)** 2.8 cm^3 **D)** 2.8×10^{3} cm^3

12) How many mi^2 are there in 2.5 km^2?

A) 0.97 **B)** 1.6 **C)** 4.0 **D)** 6.5

13) At which of these temperatures would the molecules in a sample of water be moving the fastest?

A) 55 K **B)** 55°C **C)** 55°F

14) How many J are there in 239 calories?

A) 999.9 **B)** 1,000 **C)** 1.00×10^{2} **D)** 1.00×10^{3}

15) It takes 136 J to increase the temperature of 8.75 g of an unknown metal by 35.0 °C. What is the specific heat capacity of the metal?

A) 0.0294 J/g•°C **B)** 0.444 J/g•°C **C)** 2.25 J/g•°C **D)** 4.17 x 10 J/g•°C

16) If 46.0 g of ethanol at 22.0 °C absorbs 1.45 kJ of heat, what is the final temperature of the ethanol?

A) 12.9 °C **B)** 22.1 °C **C)** 34.9 °C **D)** 616 °C

17) A backpacker carries 1.5 gallons of white gas as fuel for her camping stove. How many pounds of fuel does she have to carry? The density of white gas is 0.79 g/cm^3.

A) 4.8 lb **B)** 9.9 lb **C)** 22 lb **D)** 0.65 lb

18) A runner has a pace of 8.4 mi/hour. How fast does she run in m/s?
A) 3.8 m/s **B)** 13 m/s **C)** 0.29 m/s **D)** 24 m/s

19) When 27.0 g of an unknown metal at 88.4 °C is placed in 115 g of water at 21.0 °C, the final temperature of the water is 23.7 °C. What is the specific heat capacity of the metal?
A) 0.60 J/g•°C **B)** 0.55 J/g•°C **C)** 0.91 J/g•°C **D)** 0.74 J/g•°C

20) The combustion of 0.309-g sample of coal is found to raise the temperature of 1105 g of water from 20.45ºC to 22.28ºC. Determine the amount of heat (in kJ/g) given off during the combustion of coal.
A) 50.8 kJ/g **B)** 31.0 kJ/g **C)** 27.4 kJ/g **D)** 47.2 kJ/g

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Answer Key: Each question is worth 5 pts

1) A	2) C	3) D	4) A
5) D	6) A	7) D	8) A
9) C	10) B	11) D	12) A
13) B	14) D	15) B	16) C
17) B	18) A	19) D	20) C

Practice Exam – Self Reflection

A) What grade did you earn on this practice exam?

B) Are you satisfied with your grade on this practice exam? YES _____ NO _____

C) What is your current grade in CHEM 4? (check Canvas)

D) Are you satisfied with your current grade in CHEM 4? YES _____ NO _____

E) Why do you think you made mistakes on this practice exam? *[Check all that apply.]*

- ☐ Did not study enough
- ☐ Difficulty with the mathematics
- ☐ Did not understand the concepts
- ☐ Felt rushed during the exam
- ☐ Family/personal issues
- ☐ Other (explain):
- ☐ Unfamiliar with terminology
- ☐ Difficulty applying the concept to new contexts
- ☐ Careless mistakes
- ☐ Thought I knew the material better than I did
- ☐ Test anxiety/panicked

F) Which of these resources have you been taking advantage of? *[Check all that apply.]*

- ☐ PAL sessions
- ☐ PAL leader office hours
- ☐ Instructor office hours
- ☐ Commit to Study mentoring
- ☐ Review posted clicker questions
- ☐ Study groups
- ☐ Practice exams
- ☐ Optional *MasteringChemistry* homework
- ☐ PARC tutoring
- ☐ Other (explain):

G) Discuss your weakness and strengths in terms of your study skills and how you approached the class up until taking this practice exam and discuss any changes you plan on making moving forward.

a. Strengths:

b. Weaknesses:

c. Changes you plan on making (be as specific as possible):

Practice Exam – Correction Template

(print out 1 copy of this template for each question you got wrong)

1) What question # from the practice exam are you correcting?

2) What concepts are being dealt with in the question? In other words, what type of problem is it?

3) Where in your textbook (what page) and when in your lecture notes (what date) is this type of problem dealt with?

Part I: Working a similar problem to the one you got wrong

4) Write out a similar problem and all the work needed for you to fully understand it. [Continue on back as needed.]

Part II: Correcting the problem you got wrong

5) Write out the question that you got wrong and all the work needed for you to fully understand it. Include clarifying/explanatory comments. [Continue on back as needed.]