

**PLEASE READ THIS COVER PAGE AND FOLLOW THE INSTRUCTIONS.
DO NOT OPEN THE EXAM UNTIL YOU ARE TOLD TO DO SO.**

On the computer graded answer sheet, enter your name and student identification number in the appropriate boxes. Enter the number of your lab section in the four columns at the upper left of the sheet. (Use a zero before the lab section number - for example, section 231 is written as 0231.) Then fill in the corresponding bubbles below your name, ID number, and lab section.

Answer all questions on the computer graded answer sheets by filling in the proper bubble with a No. 2 pencil. If you change an answer, erase the undesired mark thoroughly. Mark only the best answer to each question. Programmable calculators are not permitted during the exam.

A Periodic Table with atomic numbers and masses is attached to the back of this exam; use the back of the exam pages as scratch paper. There are 5 exam pages (3 with 12 multiple choice questions plus 2 pages to be turned in with written answers), a cover page, and a Periodic Table. When you are instructed to begin the exam, please check that you have all pages. Write your name on the two pages to be turned in. You may keep the multiple choice question pages. Good luck!

Useful Information:

$$^{\circ}\text{C} = (^{\circ}\text{F} - 32)5/9$$

1. How much does one mole of oxygen weigh at STP?
2. Write the chemical formula for aluminum hydroxide.
3. Write the chemical formula for calcium carbonate.
4. Write the chemical formula for copper(I)sulfate.
5. Calculate the mass of chlorine available from 250 mL of 0.50 M hydrochloric acid.
6. Calculate the volume of hydrochloric acid needed to neutralize 25 mL of 0.50 M barium hydroxide.

7. A pencil lead is made of graphite ($d = 2.5 \text{ g/cm}^3$), has a radius of 1mm, and a length of 20 cm. Calculate the number of moles of carbon the pencil lead. useful formula: $V_{\text{cylinder}} = \pi r^2 h$.

8. Aqueous lead(II)nitrate reacts with aqueous hydrochloric acid to produce solid lead(II)chloride. Write a balanced chemical reaction. If 250 mL of 0.50 M lead(II)nitrate is added to 100 mL of 0.50M hydrochloric acid, what is the limiting reagent? state the number of moles remaining for each reactant after reaction is complete.