**Quiz 10**

# Directions: Answer each of the following questions. Be sure to use complete sentences where appropriate. For full credit be sure to show all of your work. Where appropriate answers should be boxed for clarity, written to the correct number of significant figures, and, include the proper units.

1. The first atomic explosion was detonated in the desert north of Alamogordo, New Mexico, on July 16, 1945. What fraction of the strongtium-90 (t1/2 = 28.9 years) originally produced by that explosion still remains as of July 16, 2019 (8 points)?
2. One type of commercial smoke detector contains a minute amount of radioactive americium-241, which decays by α-particle production. The α particles ionize molecules in the air, allowing it to conduct an electric current. When smoke particles enter, the conductivity of the air is changed and the alarm buzzes (6 points).
   1. Write the equation for the decay of americium-241 by α particle production.
   2. The complete decay of americium-241 involves successively α, α, β, α, α, β, α, α, α, β, α, and β production. What is the final stable nucleus produced in this decay series?
3. Complete the following sentences (6 points):
   1. My favorite experiment/chapter/topic in chemistry 142 was\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. One piece of advice that I would give to a beginning chemistry 141 student is…
   3. One piece of advice that I would give to a beginning chemistry 142 student is…

**Quiz 10**

# Directions: Answer each of the following questions. Be sure to use complete sentences where appropriate. For full credit be sure to show all of your work. Where appropriate answers should be boxed for clarity, written to the correct number of significant figures, and, include the proper units.

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N = 241 – 4 – 4 – 0 – 4 – 4 – 0 – 4 – 4 – 4 – 0 – 4 – 0 = 241 – 4(8) = 209

Z = 95 – 2 – 2 – (-1) – 2 – 2 – (-1) – 2 – 2 – 2 – (-1) – 2 – (-1) = 95 – 2(8) – (-1)(4) = 83

1. Complete the following sentences (6 points):
   1. My favorite experiment/chapter/topic in chemistry 142 was\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. One piece of advice that I would give to a beginning chemistry 141 student is…
   3. One piece of advice that I would give to a beginning chemistry 142 student is…