Correct answers to questions 1 through 5 are worth 3 points each.

1. Reserve acidity is estimated by measuring
   a) the calcium concentration of the soil.
   b) soil pH.
   c) soil buffer pH.
   d) the soluble aluminum concentration of the soil.

2. The acid neutralizing factor for a liming material is 90% and the fineness factor is 60%. What is the effective calcium carbonate equivalent?
   a) 60%.
   b) 90%.
   c) 30%.
   d) 54%.

3. The electrical conductivity of a soil solution is 5 mmho/cm and the exchangeable sodium percentage is 10%. The soil is classified as a
   a) saline soil.
   b) sodic soil.
   c) saline/sodic soil.
   d) its a “normal” soil.

4. A soil has an electrical conductivity of 8 mmho/cm and a pH of 9.0. How would you reclaim it?
   a) Leach with low salt content water.
   b) Incorporate CaSO$_4$ and leach with low salt content water.
   c) Incorporate CaSO$_4$ and leach with high salt content water followed by leaching with low salt content water.
   d) The soil doesn’t need to be reclaimed.

5. Transformation of ammonium to nitrate in soils is called
   a) fixation.
   b) nitrification.
   c) mineralization.
   d) immobilization.

6. Incorporation of inorganic N into microbial biomass in soils is called
   a) immobilization.
   b) fixation.
   c) mineralization.
   d) nitrification.
Correct answers to questions 7 through 13 are listed behind each question.

7. Please briefly describe the difference between plant residues and soil organic matter. (5 points)

8. How much CaCO$_3$ would you apply to a soil to neutralize 3 meq of acidity/100 g soil. Assume the ECCE is 100%. (5 points)

9. It is generally accepted that tilling soils will result in a decrease in soil organic matter content. Please give two reasons why this is true. (5 points)

10. Why is high salt content in soils a problem for plant growth? (5 points)

11. Your first job after graduating and leaving ISU is as a soils specialist with a landscaping firm. The planting plan for a project calls for planting african violets into a soil with a pH of 7.8. You know that the plants require an acid soil pH. List two ways that you might decrease soil pH (5 points)
12. What is the most reasonable way to increase soil organic matter content? (5 points)

13. Limestone must be incorporated into soils to be effective in increasing soil pH. Why? (2 points)