Faculty of Agriculture Soil Department
Soil and water Program
Academic Year 2014-2015
Second Semester
Third Level (CH)

Final Theory Exam
Organic Matter Chemistry
Code No Sol 318
Total Mark: 60
Time : 2 Hours
Date: 31/5/2015

The exam consists of one sheet

Please answer all the following questions

1- Discuss the four hypotheses for the formation of humic substances? (10 marks).

2- Explain the classical method to extract humic materials from soil or sediments. (10 marks).

3- Identify the E_4 / E_6 ratio of dilute aqueous HA and what is the magnitude of this ratio? (10 marks).

4- Indicate what are the functional groups in humic and fulvic acids as shown in IR spectra with drawing? (10 marks).

5- A- True ($\sqrt{}$) or False (x) with the correct?   (5 marks).

1- (   ) Rapidly decomposed *such as* Hemicelluloses, celluloses.

2- (   ) significance of carbohydrates in soil arise largely from the ability of complex polysaccharides to bind inorganic soil particles into stable aggregates.

3- (   ) Drainage and Texture are from the factors affecting soil organic matter.

4- (   ) When the decomposition of fresh organic residues reaches to the stage where the C: N ratio is 40:1 there is an increase in the availability of N.

5- (   ) Decomposition of soil organic matter: Under aerobic conditions the products formed are CO_2, NH_4, NO_3, H_2PO_4.

B- Draw diagram illustrating both of phosphorus transformation in soil and organic compounds of soil ?   (5 marks).

6- A: Write the chemical symbol for?   (5 marks).

      1-amino acids   2- Monosaccharides

      3- Amino sugars   4- Oligosaccharides

      5- Polysaccharides

B: What is the meaning of   (5 marks).

      1- Ammonification   2- Aminization

      3- Mineralization of P   3- Nitrification

      5- Soil organic matter

With best wishes

Examiners committee
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