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COLLEGE OF AGRICULTURE, FISHERIES AND FORESTRY (CAFF)

Department of Crop Production

School of Agricultural Sciences

Trade Diploma in Agriculture –Year I

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SAC 402 -Fundamentals of Soil Science

Date of Examination

Time:

FINAL EXAM- Trimester 3, 2015

DURATION 3 HOURS

**INSTRUCTIONS TO STUDENTS**

1. You are allowed 10 minutes extra reading time in which you are NOT permitted to write.
2. Attach all the sheets used as your answer paper in their correct sequence and secure with string.
3. Use both sides of the answer sheet and write your candidate number on each sheet.
4. Write clearly the number(s) of the question(s) attempted on the top of each sheet.
5. Candidates are not allowed to carry any textual material, printed or written material, bits of papers, inside the Examination Room/Hall

SECTION	PARTICULARS	TOTAL MARKS
A	Part 1: Fill in the Blanks Part 2: True and False Part 3: Short answers	20
B	Part 4: Long answers	30
	<b>Total</b>	<b>50</b>

## SECTION -A

There are three parts in this section. All the questions are compulsory. In your answer booklet write the question number followed by the answer.

### **Part 1: Fill in the blanks with appropriate answers give below. (8 X0.5=4 Marks)**

1. \_\_\_\_\_ is considered as the father of soil science.
2. The term SOIL was derived from the Latin Word "SOLUM" Means \_\_\_\_\_.
3. Soil \_\_\_\_\_ is the branch of soil science which deals with micro organisms, its population, classification, its role in transformations.
4. Soil \_\_\_\_\_ is a process of detachment and transportation of soil by natural agencies of water and wind.
5. \_\_\_\_\_ erosion occurs when the falling raindrops splash on the soil, and beat the bare soil into flowing mud.
6. The oven dry weight of a unit volume of soil inclusive of pore spaces is called \_\_\_\_\_.
7. The amount of energy required to raise the temperature by 1<sup>0</sup>C is called as \_\_\_\_\_.
8. Soil colour for soils containing high amount of organic matter is \_\_\_\_\_.

### **Part 2: TRUE OR FALSE (8X 0.5 =4 Marks)**

1. Freezing and thawing and abrasion are both forms of mechanical weathering.  
(True/False)
2. Fine textured soils are generally higher in organic matter than coarse textured soils.  
(True/False)
3. The amount of water required to apply to a soil at the wilting point to reach the field capacity is called the "available" water.( True/False)
4. Organic matter is also classified on the basis of their rate of decomposition.  
(True/False)
5. Rapidly decomposing organic matter are Sugars, starches, proteins etc. (True/False)
6. The transformation of organic nitrogenous compounds into ammonia is called ammonification.(True/False)

7. Weathering is basically a process of breaking down rocks and/or stones at Earth's surface.(True/False)
8. Particle density of normal soils is 2.65 grams per cubic centimeter. (True/False)

**Part 3: (Short answers)**

**(6 X 2=12Marks)**

Answer all questions. Answer each in 50 words.

**Each question carries 2 marks.**

1. Explain the difference between particle density and bulk density.
2. What is soil water? Explain how you can determine soil water content.
3. Explain importance of soil and functions of soil in our ecosystem.
4. Explain the difference between soil texture and structure.
5. What are the different soil organic matter sources and its significance?
6. Compare and contrast mechanical and chemical weathering.

**Section-B**

**Part 4: (Long answers)**

**(5 X 6=30Marks)**

Answer all the questions. Answer each in 300 words. **Each question carries 6 marks.**

1. Sketch soil profile and illustrate in detail its major horizons in soil profile.
2. Explain importance weathering and soil formation.
3. Explain plant nutrition. Discuss important function and deficiency symptoms of macro nutrients.
4. Discuss soil erosion and its management practices.
5. Discuss the watershed management.

**THE END**