

JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY SCHOOL OF AGRICULTURE

UNIVERSITY EXAMINATION FOR DEGREE OF BACHELOR OF EDUCATION SCIENCE (HORTICULTURE)

1ST YEAR 2ND SEMESTER 2013/2014 ACADEMIC YEAR MAIN

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COURSE CODE: ALS 3123

COURSE TITLE: INTRODUCTION TO SOIL SCIENCE

EXAM VENUE: LAB 1 STREAM: (BSc. Soil science)

DATE: 18/08/14 EXAM SESSION: 9.00 – 11.00 AM

TIME: 2.00 HOURS

Instructions:

1. Answer ALL questions in section A and ANY other 2 questions in section B

2. Candidates are advised not to write on the question paper.

3. Candidates must hand in their answer booklets to the invigilator while in the examination room.

SECTION A

1.	a) Differentiate between Ped and Pedon.	[2 marks]
	b)Explain the relevance of soil textural triangle to a soil scientist.	[3 marks]
	c)Explain any three criteria for classifying soil micro-organisms.	[3 marks]
	d)Briefly comment on the role of temperature in soil formation.	[3 marks]
	e)Explain what you understand by the term isomorphous substitution.	[3 marks]
	f)As a soil science student why is understanding of soil as a natural	
	body important.	[4 marks]
	g)Explain any two differences between Illuviation and Elluviation in pedology.	[4 marks]
	h)Highlight the difference between primary and secondary minerals in soil.	
	Givetwoexamples in each case.	[4 marks]
	i)Show how hydrolysis and redox reactions contribute to chemical weathering.	[4 marks]

SECTION B

2.a) Discuss time and relief as soil forming factorsb) 2:1 and 1:1 are types of clay, explain giving one example in each casec) Explain how water infiltration can be managed in sustaining soil health	[10 marks] [5 marks] [5 marks]
3. a) Discuss the development of charge on clay minerals, highlighting	
its significance in agricultural productivity.	[10 marks]
b) Using a well labeled diagram, describe the soil profile.	[10 marks]
4. Describe basic principles of land evaluation and survey.	[20 marks]