

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

**SECOND YEAR EXAMINATION FOR THE AWARD OF BACHELOR OF
SCIENCE IN AGRICULTURE**

SOIL 213: SOIL GENESIS, SURVEY AND CLASSIFICATION

STREAMS: BSC AGRIC Y2S2

TIME: 2 HOURS

DAY/DATE: FRIDAY 12/4/2024

8.30 A.M. – 10.30 A.M.

INSTRUCTIONS:

- **Answer All Questions in SECTION A(30 MARKS) and any three in SECTION B (40 MARKS)**

SECTION A

QUESTION ONE (25 MARKS)

- (a) Describe the alfisols and spodosols soil orders. (4 marks)
- (b) Explain the Ustic and Udic soil moisture regimes. (4 marks)

QUESTION TWO

- (a) Explain the requirements for the oxic diagnostic subsurface horizon. (3 marks)
- (b) Explain the major land use natural resource concerns. (3 marks)

QUESTION THREE

- (a) Explain The Class VIII soils in the USDA Land Capability Classification System. (4 marks)
- (b) Explain the subgelic and thermic Soil Temperature Regimes. (4 marks)

QUESTION FOUR

- (a) Explain the random soil sampling design. (4 marks)

(b) Distinguish between y and w subordinate distinctions within master horizons.

(4 marks)

SECTION B

QUESTION FIVE

(a) Explain the features which can usually be readily identified by stereoscopic examination of paired air photographs. (9 marks)

(b) Explain the redoximorphic features found in soils. (4 marks)

(c) Soil color is usually registered by comparison of a standard color chart (Munsell Book of Colors). Explain the main characteristics of the color distinguished under this standard.

(7 marks)

QUESTION SIX

(a) Describe any three (3) examples of land utilization types. (6 marks)

(b) Briefly explain the transformations within the soil. (8 marks)

(c) Explain the guidelines used to determine the various soil particle classes. (6 marks)

QUESTION SEVEN

(a) Explain the advantages of aerial photography over ground-based observation. (5 marks)

(b) Discuss the main hazards and limitations that are assessed in land suitability classification. (8 marks)

(c) Differentiate between Taxadjuncts and Variants as applied in soil survey. (7 marks)

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