

CHUKA



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**EXAMINATION FOR THE AWARD OF DEGREE OF
MASTER OF SCIENCE IN SOIL SCIENCE**

SOIL 839: FOREST SOIL

STREAMS: MSC (SOIL SCIE) Y2S2 P/T

TIME: 3 HOURS

DAY/DATE: FRIDAY 09/08/2019

8.30 AM – 11.30 AM

INSTRUCTIONS:

Answer ALL Questions in Section A (30 Marks) and any Two in Section B (30 Marks)

SECTION A

Question One

- (a) Explain what forests are and why they are important to humans. [8 marks]
- (b) Discuss the functions that determine the ecological roles of soils in the environment. [5 marks]

Question Two

- (a) Describe the early soil classification made by the USDA in 1938, of forest soils. [9 marks]
- (b) Explain with relevant examples, Tropic and Temperate Forest Soils. [8 marks]

SECTION B

Question Three

- (a) Forests, forest soils and their interactions carry out key functions that contribute to food security and a healthy environment. Discuss. [10 marks]
- (b) Explain the influence of forest harvest on soil microbial communities. [5 marks]

Question Four

(a) Explain the effects of forest type on denitrification. [6 marks]

(b) Explain the microbial processes in forest soils. [9 marks]

Question Five

(a) Describe soil as a component of forest ecosystems. [6 marks]

(b) There are several ways in which CO₂ and N can interact so as to allow growth response to CO₂ even under N limitation. Discuss citing relevant examples. [9 marks]
