

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

FOURTH YEAR EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR
OF SCIENCE IN WILDLIFE ENTERPRISE MANAGEMENT

WIEM 415: ENGINEERING FOR WILDLIFE

STREAMS: BSC (WIEM) Y4S1

TIME: 2 HOURS

DAY/DATE: FRIDAY 26/03/2021

2.30 P.M. – 4.30 P.M.

INSTRUCTIONS:

- Answer ALL questions in section A and any TWO in section B
- Do not write on the question paper

SECTION A (30 MARKS)

1. Write short notes on the following concepts [4 marks]
 - (a) Soil consistency
 - (b) Barrier effect
 - (c) Soil compressibility
 - (d) Pedosphere
2. Explain the process you would follow when constructing roads at Kairini conservancy [5 marks]
3. Briefly describe the criteria you would use to construct the offices at Kairini conservancy [5 marks]
4. Describe three types of signages you would recommend to be installed within Mwea National Reserve [6 marks]
5. Briefly explain five properties of soil that makes it an important engineering material [5 marks]
6. Outline five typical causes of car engine failing to start [5 marks]

SECTION B (40 MARKS)

7. The Kenya National Highway Authority is constructing a road across the Aberdare National Park. Discuss the impacts of this road to the ecosystem [20 marks]
8. Chuka University is planning to develop a life Wildlife Lab and Resource Centre, discuss the factors that should be considered during the facility development process. [20 marks]
9. (a) During a field study at Mount Kenya Wildlife Conservancy, you collected a soil sample weighing 100g and a volume of 300cm³ and after subjecting the sample to a 350°C even for 24 hrs, the sample weighed 65g. The sample was then compacted to have a final weight of 55g and a volume of 180cm³. Based on the experiment, calculate: [8 marks]
- (i) Bulk density
 - (ii) Particle density
 - (iii) Porosity
 - (iv) Soil moisture
- (b) Describe the various types of fences used within protected areas [12 marks]
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