CHUKA  **UNIVERSITY**

UNIVERSITY EXAMINATIONS

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

WIEM 415: ENGINEERING FOR WILDLIFE

STREAMS: WIEM Y4S1 **TIME: 2 HOURS**

DAY/DATE: TUESDAY 03/12/2019 **11.30 AM – 1.30 PM**

INSTRUCTIONS:

- **Answer ALL Questions in Section A and any Two Questions in Section B**
- **Do not write anything on the question paper**

SECTION A (30 MARKS)

1. Briefly explain the meaning and value of soil to:

   (a) Engineers [2 marks]
   (b) Ecologist [2 marks]
   (c) Agriculturalists [2 marks]

2. Briefly explain three functions of fences within a protected area. [6 marks]

3. Describe briefly six key parts of motor vehicles which require regular checkup. [6 marks]

4. Briefly explain the criteria to be met when constructing offices and other buildings within National Parks and Reserves. [6 marks]

5. Explain briefly three categories of signages installed within protected areas. [6 marks]

SECTION B (40 MARKS)

6. You have been contracted to construct an access road at Mount Kenya National Park. Discuss the ecological impacts the construction will have on the park ecosystem.

[20 marks]

7. (a) Discuss the characteristics of soil important to an engineer which you can measure in the field. [12 marks]

(b) During a recent field study, you collected a soil sample weighing 50g and a volume of 200cm^3 and after subjecting the ample to a oven for 24 hrs, the sample weighed 45g. The sample was then compacted to have a final weight of 42g and a volume of 160cm3. Based on the experiment, calculate:

(i) Bulk density [3 marks]
(ii) Particle density [3 marks]
(iii) Soil moisture [2 marks]

8. The manager Mount Kenya Animal Orphanage has contracted the Wildlife Enterprise and Management class to construct holding cages for the orphaned animals. Discuss the factors you would consider when building these cages. [20 marks]
