CHUKA UNIVERSITY

UNIVERSITY EXAMINATIONS

EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURE

AGRI 401: DRYLAND FARMING

STREAMS: B.SC AGRI Y4S1 **TIME: 2 HOURS**

DAY/DATE: FRIDAY 06/12/2019 **8.30 A.M. – 10.30 A.M.**

INSTRUCTIONS:

- **Answer ALL questions in section I and answer any two in section II.**

SECTION I (30 MARKS)

Q1. Briefly explain and illustrate the concept of a sustainable agricultural system. (6 marks)

Q2. (a) Explain why increasing crop diversity has the potential to improve sustainability in dryland agriculture. (4 marks)

(b) Explain how farmers can facilitate good on-farm nutrient management plan to minimize negative impacts of nutrient losses on the environment. (4 marks)

Q3. (a) Differentiate the following terms;

(i) Elastic resistance and plastic resistance. (2 marks)

(ii) Physical soil drought and physiological soil drought. (2 marks)

(b) Explain how managing crop residues optimize production systems for dryland agriculture. (4 marks)

Q4. (a) State four means through which evaporation losses can be reduced in a dryland farming environment. (2 marks)

(b) Dryland farming is faced with harsh environmental conditions hence low agricultural productivity. Explain briefly the socio-economic impacts of lack of intervention in dryland farming conditions.
(6 marks)

SECTION II (40 MARKS)

Q5. (a) Discuss the factors that affect the performance of crops in dryland areas. (10 marks)

(b) Discuss the application of conservation agriculture in increasing agricultural productivity in dryland farming conditions. (10 marks)

Q6. (a) Describe agronomic practices that could bring about immediate positive results in many dryland areas. (10 marks)

(b) In dryland farming systems crop performance is characterized by very low and highly variable and uncertain yields. Discuss why crop failures occur in such areas.
(10 marks)

Q7. (a) Discuss how farmers can minimize runoff and water wastage in dryland farming systems to facilitate water use efficiency. (9 marks)

(b) Discuss how farmers in dryland farming systems can purify sewerage water to facilitate its recycling and increase water use efficiency. (6 marks)

(c) Explain why farmers should incorporate cover cropping in dryland farming systems. (5 marks)
