



GWANDA STATE UNIVERSITY
FACULTY OF LIFE SCIENCES
BSc CROP SCIENCE HONOURS DEGREE
LCS 2213 AGRICULTURAL WATER RESOURCES MANAGEMENT

SECOND SEMESTER EXAMINATION PAPER JUNE 2019.

Time Allowed: 3 hours
Total Marks: 100
Special Requirements: N/A
Examiner's Name: Mr Dlamini D

INSTRUCTIONS.

1. Answer **All** questions in Section A.
2. Answer any **THREE** Questions in Section B. Each question in this section will carry 20 marks.
3. Do not open question paper until told to do so.

Section A Answer **All** questions.

1. Define the following :
 - a. First Flash (1 mark)
 - b. Percolation (2 marks)
 - c. Scarce resource (2 marks)
 - d. Water Resources Development (2 marks)

2. Distinguish between the following:
 - a. Water harvesting vs Rainwater harvesting (2 marks)
 - b. Ground water and Surface water (2 marks)
 - c. Salinity and Sodidity (2 marks)
 - d. Hydroscopic vs Capillary water (4 marks)

3. How do you determine what type of irrigation to use? (5 marks)

4. Compare and contrast drip and sprinkler irrigation systems. (4 marks)

5. Explain how ET is used when irrigation scheduling? (3 marks)

6. State and describe four water related problems you may encounter in a field. Pick one of the problems and discuss how you can change management practices to deal with problem. (7 marks)

7. Discuss the factors that lead to build up of salts is a field under irrigation (4 marks)

Section B Answer any **THREE** Questions.

8. What is the importance of Water Resource Management and its implication on future generations of man-kind? (20 marks)
9. Discuss climate change and its impact on the hydrological cycle? (20 marks)
10. In most regions of the world, over 70 percent of freshwater is used for agriculture. By 2050, feeding a planet of 9 billion people will require an estimated 50 percent increase in agricultural production and a 15 percent increase in water withdrawals. Discuss the threats to freshwater resources and suggest strategies that can be used for sustainable use of fresh water. (20 marks)
- 11 a. Discuss four major purposes of rain water harvesting. In your discussion describe four rain water harvesting structures. (16 marks)
- b. What are the advantages of rain water harvesting? (4 marks)