



NAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY

FACULTY OF HEALTH, NATURAL RESOURCES AND APPLIED SCIENCES
SCHOOL OF AGRICULTURE AND NATURAL RESOURCES SCIENCES
DEPARTMENT OF AGRICULTURAL SCIENCES AND AGRIBUSINESS

QUALIFICATIONS: BACHELOR OF SCIENCE IN AGRICULTURE	
QUALIFICATIONS CODE: 07BAGA	LEVEL: 7
COURSE CODE: SCP621S	COURSE NAME: SUSTAINABLE CROP PRODUCTION
DATE: NOVEMBER 2024	PAPER: 1
DURATION: 3 HOURS	MARKS: 100

FIRST OPPORTUNITY EXAMINATION QUESTION PAPER	
EXAMINER:	DR. VENAUNE HEPUTE
MODERATOR:	DR. EDGAR MOWA

INSTRUCTIONS
<ol style="list-style-type: none">1. Answer all the questions.2. Write neatly and clearly.3. Mark all answers clearly with their respective question numbers.4. All written work MUST be done in blue or black ink.5. No books, notes and other additional aids are allowed.

PERMISSIBLE MATERIALS

1. Calculator
2. Examination paper
3. Examination script

THIS QUESTION PAPER CONSISTS OF 3 PAGES
(Excluding This Front Page)

SECTION A: MULTIPLE CHOICE AND TRUE / FALSE**[10 MARKS]****QUESTION 1: MULTIPLE CHOICE QUESTIONS**

Evaluate the statements in each numbered section and select the most appropriate answer or phrase from the given possibilities. Fill in the appropriate letter next to the number of the correct statement/phrase on your ANSWER SHEET.

[10 marks]

1.

1.1. Sustainable Crop Production pillars are;

- a). Economical, Educational, Profitable
- b). Environmental, Social, Economic
- c). Social, Global, Regional
- d). None of the above

1.2. The following are weather, and climate elements required for optimal crop growth

- a). Bulk Density, Texture, Soil structure
- b). Rainfall, Temperature, Humidity, Wind, Air
- c). Crop rotation, Cover Crops, Green Manure
- d). Human, Animal, Microorganisms

1.3. The typical soil requirement of cowpea;

- a). Well drained loam or slightly heavy soil
- b). Clay
- c). Poorly drained soil
- d). None of the above

1.4. The typical soil requirement of cabbage.

- a). Well drained, loam soil well, sandy loams
- b). Poor sandy soil
- c). Heavy clay soil
- d). None of the above

1.5. Fruits of economic importance in Namibia.

- a). Grapes, Blueberries, Dates, Mango
- b). Rice, sorghum, soyabeans
- c). Cabbage, Lettuce,
- d). None of the above

1.6. Different types of vegetable groups;

- a). Stem, Leafy
- b). Root, Tuber, Flower
- c). All of the above (a,b)
- d). None of the above

1.7. The following are classified as Oilseeds;

- a). Sesame, Sunflower,
- b). Maize, Wheat, Pearl millet
- c). Sweet corn, cowpea, apple
- d). Orange, Lemon, Guava

- 1.8. The benefit of organic matter in the soil;
 - a). Improve soil structure, microbial activity, moisture retention
 - b). Increase pest
 - c). Decrease yield
 - d). Increase water run-off
- 1.9. Among other following are sustainable crop protection practices.
 - a). Integrated Pest Management, planting of resistant variety and manual weeding
 - b). Application excessive herbicides
 - c). Application excessive pesticides
 - d). Application of manure
- 1.10. The following factors influence temperature EXCEPT.
 - a). Wind
 - b). Precipitation
 - c). Day length
 - d). Nutrients

QUESTION 2: TRUE/FALSE QUESTIONS

[10 MARKS]

Evaluate the statements and select whether the statement is true or false. Write the word 'True' or 'False' next to the corresponding number on your ANSWER SHEET.

[10 marks]

- 2.
- 2.1 Among the goals of sustainable agriculture is to meet society's food demand needs in the present without compromising the ability of Natural Agricultural Resources meeting the future generations' needs.
- 2.2 The science of principles application of climatology into agricultural production systems is called Land degradation.
- 2.3 Soil restoration is the process of recovery of a degraded soil to its natural conditions and capability for producing ecosystem services for enhanced crop production.
- 2.4 Weather is the long-term atmospheric conditions of any particular place.
- 2.5 LiDAR stands for Light Detection and Ranging.
- 2.6 Climate is the average of weather conditions over a long time in that specific place or space.
- 2.7 Weather and climate elements have no impact on crop production.
- 2.8 Pearl millet is among the group of cereal crop types.
- 2.9 Tomato is among the group of cereal crop types.
- 2.10 Karst production zone is among the top maize producing zone in Namibia.

SECTION B: SHORT/LONG ANSWER QUESTIONS**[20 MARKS]**

Please answer ALL the questions in this section.

QUESTION 3: TERMINOLOGIES.

3. Define and discuss the following terminologies

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|----------------------------------|-----------|
| 3.1. Sustainable Crop Production | [4 marks] |
| 3.2. Conventional Agriculture | [4 marks] |
| 3.3. Crop protection | [4 marks] |
| 3.4. Climate Change | [4 marks] |
| 3.5. Agro-climatology | [4 marks] |

QUESTION 4: SUSTAINABLE PRODUCTION PRACTICES**[35 MARKS]**

4.

- 4.1. Name and explain two tillage stages and provide three (3) examples of appropriate implements used at each stage [10 marks]
- 4.2. List and explicitly discuss five (5) production practices used in sustainable crop production [10 marks]
- 4.3. Develop a sustainable maize crop production management program adhering to the pillars of sustainable production, illustrate at each production stage the appropriate and exact sustainable production practices to be applied, starting from land preparation till harvesting. [10 marks]
- 4.4. Name and discuss different types of tillage practices recommendable under sustainable crop production system. [5 marks]

QUESTION 5: SMART - PRECISION AGRICULTURE**[25 MARKS]**

5.

- 5.1. Define Smart Agriculture. [5 marks]
- 5.2. Briefly discuss the benefit (objectives) of Smart Agriculture. [5 marks]
- 5.3. Briefly discuss the limiting factors and challenges of Smart Agriculture especially in developing countries such as Namibia. [5 marks]
- 5.4. List and explain devices, tools and equipment used under smart agriculture crop production system. Illustrate at each production stage the appropriate and exact smart production practices to be applied, starting from land preparation till harvesting. [10 marks]

END OF QUESTION PAPER