

Agriculture Assignment for O level (S.2 and S.3)

Section; Crop production

Test 1

Instructions; Attempt all questions in this document

- 1. Which one of the following soil properties increases with an increase in particle size?**
 - A. Pore space
 - B. Water retention
 - C. Humus content
 - D. Capillarity
- 2. Parent rock material does not influence the;**
 - A. type of soil formed
 - B. texture of the soil
 - C. nutrient content of the soil
 - D. depth of soil formed
- 3. Working on a wet clay soil results into;**
 - A. flocculation of soil particles
 - B. formation of puddles in the soil
 - C. loss of soil texture
 - D. loss of soil air
- 4. The combination of water with minerals to form hydrated compounds is?.....**
 - A. hydration
 - B. hydrolysis
 - C. oxidation
 - D. reduction
- 5. The type of rocks formed due to action of heat pressure and chemical changes on sedimentary rocks is;**
 - A. Sedimentary rocks
 - B. Metamorphic rocks
 - C. Igneous rocks
 - D. Granite.
- 6. The type of soil water that is readily available for use by crop plants is;**
 - A. Hygroscopic water.
 - B. Gravitational water.
 - C. Capillary water

- D. Field moisture capacity.
- 7. A soil with legumes containing rhizobium bacteria that fix nitrogen in root nodules of the crops represents;**
- A. Parasitic relationship.
 - B. Saprophytic relationship.
 - C. Mutualistic Symbiosis relationship.
 - D. Symbiotic Commensalism relationship
- 8. Which of the following factors least affects the temperatures of the soil?**
- A. Organic matter content of the soil.
 - B. Soil colour.
 - C. Soil pH.
 - D. Soil aeration.
- 9. The type of soil with a diameter of 0.02-0.002 is**
- A. Silt
 - B. Clay
 - C. Gravel
 - D. Coarse sand
- 10.is the measurement of solid particles excluding water weight and porespace ;**
- A. Pore space ratio.
 - B. Bulk density.
 - C. Particle density.
 - D. Aeration.
- 11. Which of the following factors will increase the pH of the soil?**
- A. Water logging.
 - B. Leaching of bases
 - C. Acidification by rain.
 - D. Liming the soil.
- 12. The soil type mainly influenced by relief is**
- A. Zonal soils.
 - B. Azonal soils.
 - C. Intrazonal soils.
 - D. Alluvial soils.
- 13. Deep soils favor abundance of soil living organisms because;**
- A. they provide space for soil living organisms.
 - B. they contain abundant organic matter.

- C. they provide adequate oxygen for the living organisms.
- D. they contain adequate nutrients for action of bacteria.

14. Which of the following statements is true about acid soil pH condition;

- A. The concentration of hydrogen ions is lower than the concentration of hydroxyl ions.
- B. The concentration of hydrogen ions is higher than the concentration of hydroxyl ions.
- C. The concentration of hydrogen ions is equivalent to the concentration of hydroxyl ions.
- D. The lime requirement of the soil is low.

15. During soil sampling, soil samples are picked from up to 20 sites in order to;

- A. Reduce temperature changes.
- B. Improve soil fertility.
- C. Make labeling easy.
- D. Acquire a composite sample.

Section B (25 marks); short answers; attempt all questions.

1. Give **three** (3) importance of soil water in soil fertility (03 marks)
2. State **two** (2) ways of increasing the quantity of organic matter in the soil (02 marks)
3. Outline **three** (3) properties of Clay soil (03 marks)
4. State **three**(3) importance of soil in crop production (03 marks)
5. In an experiment to determine the volume of air in a soil sample, students used the following measurements; (04 marks)

Amount of soil= 60 cm^3 ;

Amount of water = 40 cm^3 ;

Actual volume of the mixture after settling = 95 cm^3

Calculate;

- (i) Volume of air in the soil sample.
- (ii) Percentage of air in the soil sample
6. Identify **two** (2) causes of soil acidity (02 marks)
7. Give **two** qualities of a good liming material for use in agricultural production (02 marks)
8. State **three** components of the soil with their volume (03 marks)
9. Identify **three** roles of living organisms in soil formation (03 marks)

Section C: (60 marks)Essay questions; attempt any three (3) questions from this section

1. a) Define soil drainage (02 marks)
b) Describe an experiment to determine drainage of three soil samples (13 marks)
c) Why is loam soil the best for crop production? (05 marks)
2. a) State the aims of soil sampling in crop production (07 marks)
b) Describe the Procedure for obtaining a soil sample from a crop garden for laboratory use (13 marks)
3. a) Differentiate between soil profile and soil catena (02 marks)
b) Describe the characteristics of the different layers of a soil profile (13 marks)
c) Explain the importance of soil profile in crop production (05 marks).
4. a) Describe how living organisms help in soil formation (08 marks).
b) Explain the forms of chemical weathering (08 marks).
c) How does organic matter improve soil fertility? (04 marks)
5. a) What is the importance of soil structure and texture in crop production? (07 marks).
b) Explain how the soil structure can be destroyed (07 marks)
c) Suggest measures of maintaining the soil structure by the farmer (06 marks)

TEST 2

Section A (10 marks); objective questions

Attempt all questions by circling the best option

- 1. Which of the following is not a perennial weed?**
 - A. Couch grass
 - B. Star grass
 - C. Pig weed
 - D. Oxalis
- 2. The following are crop pests that attack fruits except?**
 - A. Maize stalk borer
 - B. Maize weevils
 - C. Bean bruchids
 - D. American boll worm
- 3. Monophagus pests are best controlled in the field culturally by use of.....**
 - A. Intercropping

- B. Timely planting
 - C. Resistant varieties
 - D. Crop rotation
- 4. Galls are mainly symptoms of attack by.....?**
- A. Nematodes
 - B. Viruses
 - C. Fungi
 - D. Bacteria
- 5.is designed to control pests that have not yet reached their full ecological limits and are not yet stable.**
- A. Suppression
 - B. Eradication
 - C. Containment
 - D. Quarantine
- 6. Fungi are difficult to control in crop fields because**
- A. They have spores
 - B. They are easy to control
 - C. They are not attacked by bacteria
 - D. They have limited effects on crops
- 7. The main reason why mosaics reduce the photosynthetic rates of crops is because**
- A. They damage the leaf veins.
 - B. They block transportation of sugars in plants.
 - C. They increase water loss from crops.
 - D. They destroy chloroplasts.
- 8. Aflatoxins are common toxins in**
- A. Root crops
 - B. Grains
 - C. Fruits
 - D. Field crops
- 9. It is not advisable to spray during windy conditions to ensure**
- A. Proper distribution of chemicals in the field.
 - B. Reduced inhalation of chemicals by the farmer.
 - C. Reduced costs of production.
 - D. Proper mixing of the chemicals.
- 10.is the ability of a pathogen to cause disease**
- A. Virulence
 - B. Pathogenicity
 - C. Infection
 - D. Dissemination

Section B (30 marks): short answers

Attempt all questions in this section

1. Define crop protection (02 marks)
2. Identify any **three** weeds with narrow leaves (03 marks)
3. Outline **four** factors that make couch grass hard to control (04 marks)
4. State **three** reasons as to why most farmers prefer to use chemicals when controlling weeds in their gardens (03 marks)
5. Give **three** reasons why having a small size makes insect pests to survive well in their habitats (03 marks)
6. Mention **three** conditions where the use of quarantine in pest control is difficult (03 marks)
7. State **three** symptoms of viral infections in crops (03 marks)
8. Outline four conditions for successful infection of a crop by a pathogen (04 marks)
9. Suggest three precautions taken when using pesticides (03 marks)
10. Identify two bacterial diseases that affect vegetables (02 marks)

Test 3

Section A (10 marks)

Attempt all questions in this section by circling the most correct answer

1. Which of the following macro nutrients is not obtained from the soil?
 - A. Nitrogen
 - B. Carbon
 - C. Sulphur
 - D. Calcium
2. Soil nutrients that must be supplied to the crops for the crops to complete their life cycles are....?
 - A. Essential nutrients
 - B. Macro nutrients
 - C. Micro nutrients
 - D. Minor nutrients
3. The process by which nutrients are converted into a gaseous form and lost from the soil is...?
 - A. Leaching
 - B. Soil erosion
 - C. Volatilization
 - D. Fixation

4. is the aerobic decomposition of organic matter in a pit or container by microorganisms.
 - A. Decomposition
 - B. Rotting
 - C. Composting
 - D. Fermentation
5. Which of the following does not affect the quality of farm yard manure?
 - A. Type of animal
 - B. Type of beddings
 - C. Type of feeds given to the animals.
 - D. Age of the animal.
6. Broadcasting is the application of fertilisers by.....?
 - A. Dissolving in irrigation water.
 - B. Applying on the side of crops in the garden.
 - C. Pumping into the soil under pressure.
 - D. Scattering the fertilisers uniformly over the field.
7. Which of the following is a phosphatic fertilizer?
 - A. CAN
 - B. Urea
 - C. Sulphate of Ammonia
 - D. DAP
8. Lime is added to
 - A. Adjust the pH of the material.
 - B. Reduce pest attack
 - C. Improve soil structure
 - D. Improve soil temperature
9. The types of fertilisers that supply only one major crop nutrient are.....?
 - A. Compound fertilisers
 - B. Simple fertilisers
 - C. Organic fertilizers
 - D. Inorganic fertilisers
10. Which of the following factors most affects crop response to fertilizers?
 - A. Soil temperature
 - B. Economic factors
 - C. Soil pH
 - D. Farmer's income

Section B (30 marks) short answers:

Attempt all questions in this section

1. A farmer applied 210kg of NPK fertiliser which contained the elements in the ratio 25:5:5 per hectare of a tea plantation. Calculate the amount of each nutrient that the farmer applied per hectare (05 marks)
2. Outline three benefits of mulching a crop garden (03 marks)
3. Identify any three characteristics of farm yard manure (03 marks)
4. Give two fertilizer materials that can be applied in a crop garden (02 marks)
5. State three uses of nitrogen to crop plants (03 marks)
6. Differentiate between soil fertility and soil productivity (02 marks)
7. Identify any three soil macro nutrients (03 marks)
8. Outline three qualities of a good green manure crop (03 marks)
9. State three types of organic manures (03 marks)
10. Mention three roles of microorganisms in the soil (03 marks)