FACTORS WHICH INFLUENCE AGRICULTURE

In this topic, the following factors influence agriculture.
-Human factors e.g. -level of education, -Health HIV/AIDS, -Economic status of the farmer e.t.c
- Biotic factors e.g. pests, parasites, decomposers, pathogens, pollinators, predators e.t.c.
- Climatic factors e.g. rainfall, temperature, wind and relative humidity, light
- Edaplus factors e.g. type of soils, soil profile, soil structure, soil texture, soil chemical properties.

The following relevant questions and their answers in this topic will greatly help and

motivate the user to comprehend and understand the required concepts:

1. State **two** roles of humus in the soil that are beneficial to crops

2. a) outline **five** activities that may be undertaken in organic farming

3. List **four** effects of temperature on crop growth

4. State **four** ways by which wind affects the growth of crops

5. Name **two** factors related to light that affect crop production and distribution in Kenya

6. Describe the environmental conditions that may lead to low crop yields

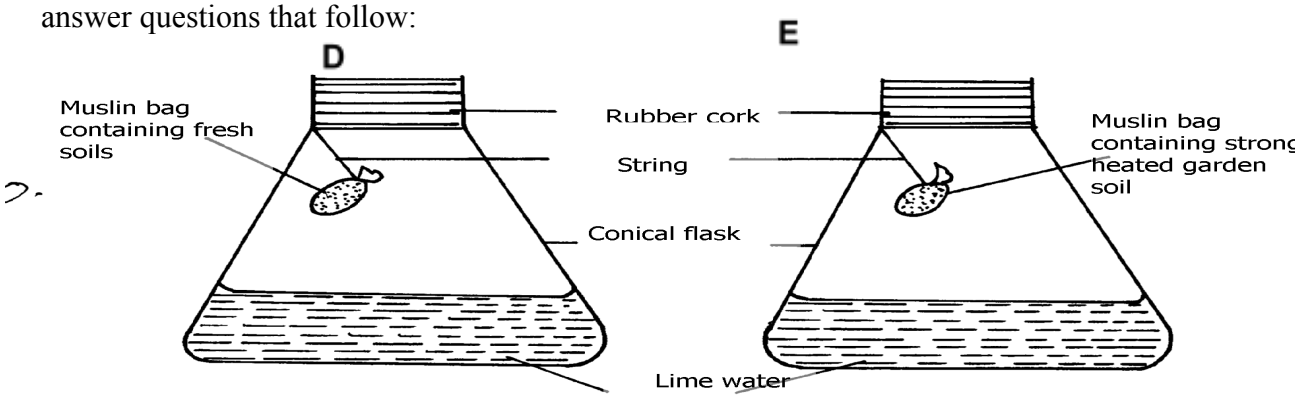
7. List **three** environmental factors that affect crop distribution in Kenya

8. State **one** physical characteristic used in classifying soil

9. Outline **four** advantages of organic farming

10. The diagrams below show an experiment carried out by a form 1 class. Study them carefully and

answer questions that follow:



(a) What was the aim of the experiment?

(b) What was the observation that form 1 students made at the end of the experiment in

flasks **D** and **E?**

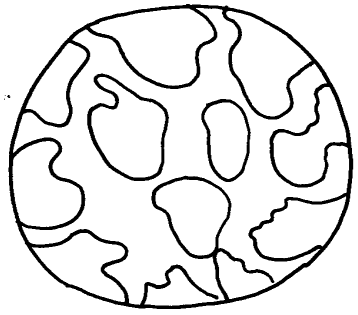
(c) Give the reason for the observation made in flask **D**

12. Briefly explain how sub-soil as a horizon in a soil profile can affect soil productivity

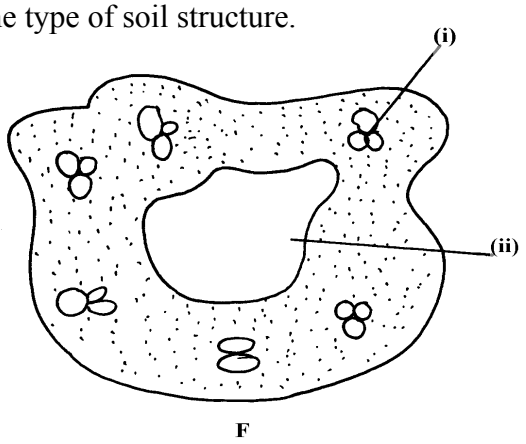
13. (a) What are the **three** aspects of light that are important to a farmer?

(b) Mention **three** ways through which relative humidity affect crop production

14. The diagram labeled **E** and **F** below illustrates some type of soil structure. Study the diagrams carefully and answer the questions that follow:



E



F

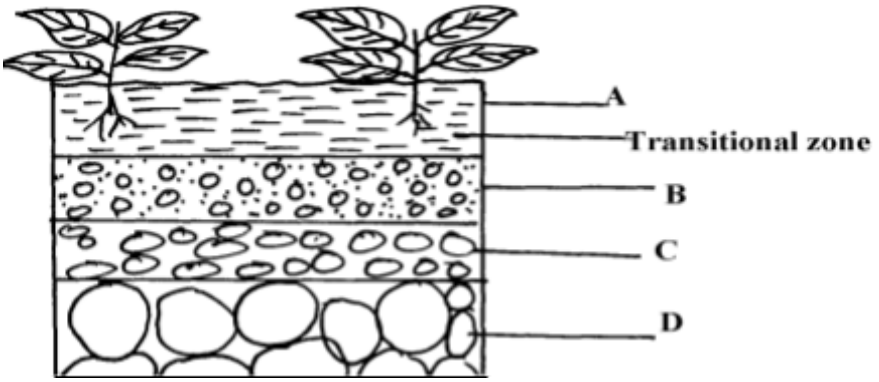
(a) Identify the types of soil structure illustrated in diagrams **E** and **F**

(b) Identify the parts labeled **(i)** and **(ii)** in diagram **F**

(c) Outline the influence of physical characteristics of soil on its properties

15. State **three** physical characteristics of soil

16. Study the diagram below and answer the questions that follow



a) State merits of horizon **A**

b) State distinct features of horizon **B**

c) What does the term **transition zone** refer to in soil profile

i) Name horizon **C** and state its importance

17. Outline **two** ways temperature affects crop production

18. List **four** ways by which biological agents can enhance the process of soil formation

19. List **four** environmental factors that affect crop production in Kenya

20. Explain the role played by topography in soil formation

22. Mention **two** importance of parent's material in soil profile

23. Mention **four** ways of modifying soil temperature in crop production

24. a) Mention **two** factors that affect selectivity of herbicides

b) Name **two** farming practice that cause water pollution

25. Give **four** factors that influence soil formation

26. State **three** properties of soil that is influenced by soil texture

27. Name any t**hree** agents of biological weathering

FACTORS WHICH INFLUENCE AGRICULTURE

1. two roles of humus in the soil that are beneficial to crops

- Provide nutrients
- Increase water holding capacity
- Increase soil temperature

Neutral soil PH

2. a) five activities that may be undertaken in organic farming

- Mulching
- Apply manure
- Use medicinal plants to control parasites and diseases
- Crop rotation
- Rear livestock on natural organically grown pasture
- Physical/ cultural/ biological/ pests, weeds and disease control

3. four effects of temperature on crop growth

Low temp-slow growth rate

-increase incidence of negative infection e.g. CBD

-improve quality of some crop

High temp-cause wilting
-increase growth rate
-improve quality of some crops
-increase pest and disease incidences (1/2x4=2mks)

4. four ways by which wind affects the growth of crops.

- Causes physical damage to crops.
- Cause rapid spread of diseases/ pests/ weeds.
- Can cause water stress as a result of evaporation.
- Causes stress of crops due to chilling caused cold winds.
- Encourage transpiration hence water and mineral uptake.

5. Two factors related to light that affect crop production and distribution in Kenya:-

- Light intensity
- Light duration
- Light wavelength

6. The environmental conditions that may lead to low crop yields

- Poor soil fertility /infertile soil
- Damage by hailstorms
- Less rainfall/unreliable/drought
- Poor soil type resulting into leaching or water logging
- Inappropriate soil PH
- Inappropriate temperature (too low or high)
- Excessive wind leading to increase in water loss from the soil
- Extreme relative humidity
- Extreme of light intensity
- Topography / some attitudes e.g. very high may limit crop growth (1mk x any 7pts = 7mks)

7. - Rainfall

- Soil
- Topography
- Light
- Wind

8. One physical characteristic used in classifying soil is:

- Colour,
- Texture,
- Structure

9. Four advantages of organic farming

- Environmental friendly
- Products do not have organic farming
- Products do not have organic chemical residue

- Improve soil structure
- Replenishes nutrients in the soil as it uses organic manure
- Enhances soil water retention
- Provides food for soil microbes
- Enhances soil water infiltration (4x ½ = 2mks)

10. (a) The aim of the experiment was:- to show presence of living organisms in the soil

(b) observations were:

- Flask D - Limewater turns milky/turbid (1mk)
- Flask E – Lime water remains clear (1mk)

(c) The reason for the observation in flask D is:-
Carbon dioxide which turns water milky in flask D would have been produced only during the respiration of living organisms present in fresh soil

11. - It may have hard pan which interfere with water infiltration

12. a) - Light duration

- Light intensity
- Light wave length (½ x3=1 ½ mks)

b) Evapotranspiration
- Presence of pest

13. a) - E – Single grained structure

- F – Granular structure
(1x1=1 mk)

b) i) Humus with clay
(1x1=1 mk)
ii) Air space
(1x1=1 mk)

c)- Colour affects soil texture and hence micro- organisms in the soil √
- Texture – affects drainage, aeration and capillary
- Structure – affects aeration and root penetration

14. three physical characteristics of soil
(1 1/2mks)

- Soil structure
- Soil texture
- Soil colour

15. a) State merits of horizon A

- source of plant nutrients
- support/anchor the crops
- store of water for the crops
- sources of soil micro organism

b) State distinct features of horizon B

- deficient of humus(nutrients)
- contain leached nutrients
- contains more compact soil particles
- presence of hard pans in some soils

c) Transitional zone-this is a zone bordering two adjacent layer of soil profile
i)Weathered rock

Importance

- Give rise to sub soil
- Source of minerals
- Determine mineral content of soil and type of soil

16

- Low temperatures encourages crop diseases such as leaf rust
- Low temperatures may increase or lower the quality of farm produce
- High temperatures hastens maturity/ improves the quality/ lower the quality
- Increases the rate of evapo transpiration which may result loss plant moisture/ leading to wilting of crops

17.

- Movement of animals in large numbers
- Decomposition of plant and animal remains by soil micro- organisms
- Physical breaking of rocks by roots of higher plants
- Man's activities e.g. cultivation, mining and road construction
- Mixing up of soil by animals e.g. earth worms and

18. - Temperature/ Altitude

- Soil type;
- Prevailing winds;
- Rainfall; (4x ½ =2mks)

19. - It influences the movement of the weathered materials hence affecting the depth of soil development;

22. two importance of parent's material in soil profile

- Determine soil characteristics
- Determine soil depth

Determine soil nutrients

23. four ways of modifying soil temperature in crop production
    - Mulching
    - Pruning
    - Shading of crops
    - Irrigation (4x ½ mks)

24. a) two factors that affect selectivity of herbicides

- Stage of plants growth
- Plants morphology and anatomy
- Mode of action
- Environmental factors (2x1=2mks)

b) Name two farming practice that cause water pollution

25. four factors that influence soil formation

- Parents rock material

- Climate
- Topography
- Biotic/organic/living organism

26. - Drainage
    -Aeration
    -Water-holding capacity
    -capillary
27. -large animals e.g. Buffaloes
    -Man activities e.g. farming
    -Root pressure of plants
    -Burrowing animals e.g moles, termites