



DEPARTMENT OF
EDUCATION

LOWER SECONDARY
SCHOOL CERTIFICATE
EXAMINATIONS
(LSSCE)

AGRICULTURE

Thursday
13th October, 2016

Time allowed:
3 hours

12:30 pm – 3:30 pm

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INSTRUCTIONS TO CANDIDATES:

(To be read out by the external invigilator before the start of the examination)

There are **46** questions in this paper worth **50** marks. Attempt **ALL** questions even if you are not so sure of some of the answers.

The Examination is divided into three parts:

PART A: Multiple-Choice (Questions 1 to 25)

PART B: Short-Answer (Questions 26 to 45)

PART C: Extended Response (Question 46)

The Answer Sheet is part of the Examination Booklet. Take out the middle pages and remove the Answer Sheet by tearing along the perforation. You may use the blank sheet for rough work.

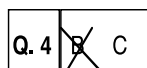
For each question in **PART A** choose the correct answer and write the letter A, B, C or D in the space provided on the **ANSWER SHEET**.

For each question in **PART B and PART C** work out the answer and write the answer in the space provided on the **ANSWER SHEET**.

If you find a question very difficult, do not spend too much time thinking about it. Leave the question out and go on with the rest of the paper. If you have time in the end, return to the difficult questions and think about them more carefully.

Write your answers in **BLUE** or **BLACK** ink (pen or biro).

If you decide to change an answer, make your correction as shown below so that it is clear to the markers what your final answer is. Do **NOT** use **correction fluid** on your answer sheet.



Hand in **BOTH** the Answer Sheet and the papers used for rough work at the end of the examination.

Extra time will NOT be allowed to complete the examination under any circumstances.

The penalty for cheating or assisting others to cheat in National Examinations is non-certification.

DO NOT TURN OVER THIS PAGE AND DO NOT WRITE UNTIL YOU ARE TOLD TO START.

PART A: MULTIPLE CHOICE**(QUESTIONS 1 to 25)****25 MARKS**

For each question, choose the correct answer and write the letter A, B, C or D in the space provided on the ANSWER SHEET.

QUESTION 1

Careless use of poisonous pesticides by farmers can kill beneficial insects, animals and humans.

Which of the following is a careless way of applying pesticides?

- A. Avoid spraying at the water source.
- B. Continue spraying during rainy conditions.
- C. Use the correct dose as indicated by manufacturer.
- D. Wear protective clothing when mixing and spraying.

QUESTION 2

The deliberate introduction of legume trees is part of the farming system known as

- A. Agroindustry
- B. Integrated farming
- C. Agroforestry
- D. Aquatic farming

QUESTION 3

What is the collective name that includes all the plants?

- A. Flora
- B. Botany
- C. Fauna
- D. Biotic

QUESTION 4

The practice of leaving the land uncultivated so that it recovers naturally is called _____.

- A. mulching
- B. manuring
- C. terracing
- D. fallowing

QUESTION 5

Which soil layer contains humus?

- A. Bed rock
- B. Top soil
- C. Sub soil
- D. Parent rock

QUESTION 6

Crops can be classified according to their lifespan.

In this type of classification, what term refers to crops that live for many years?

- A. annual crops B. biennial crops C. cereal crops D. perennial crops

QUESTION 7

Which of the choices below best describes a positive effect of a cropping system?

- A. Pastures used to restore poor soil fertility.
B. Use of livestock manure allows less spending on a fertilizer.
C. Legumes used in crop rotation leads to increased soil fertility.
D. Planting new crops leads to farmers abandoning traditional food crops.

QUESTION 8

Soil erosion is a common problem in many parts of PNG.



According to the picture above, what have the two farmers built to slow soil erosion?

- A. Walls B. Hedges C. Terraces D. Blockades

QUESTION 9

What is the word that best describes the raising of animals?

- A. Cultivation B. Husbandry C. Growing D. Breeding

QUESTION 10

Many of the crops grown in Papua New Guinea today are introduced crops. This means that they were brought in from other countries by missionaries, traders and explorers. However, there are some crops that are native to Papua New Guinea.

Which of the crops below is a native crop?

- A. Peanut B. Potato C. Kaukau D. Sago

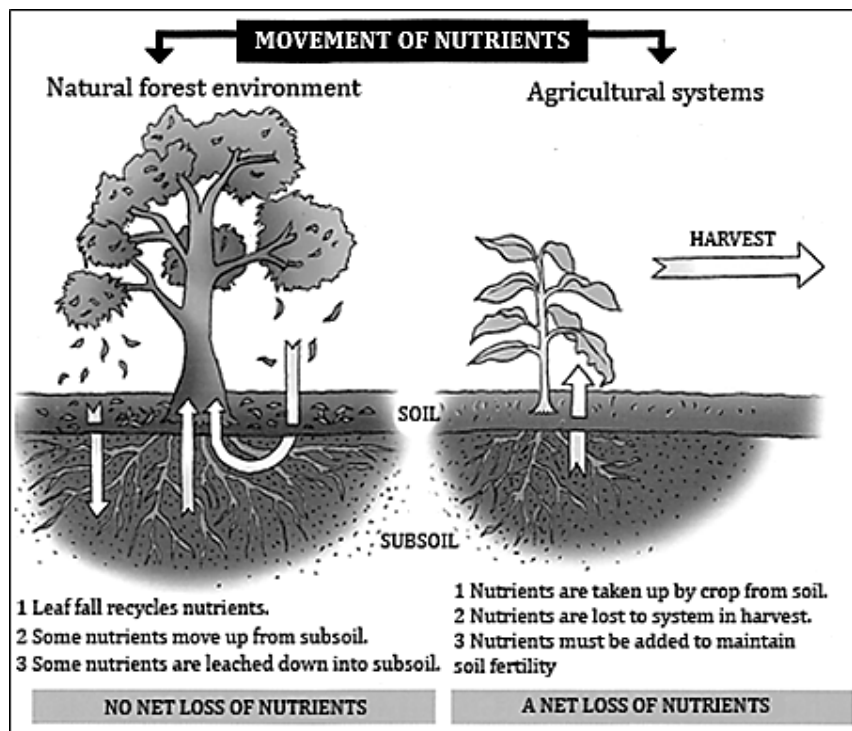
QUESTION 11

Which of the following is a disadvantage of setting up a hydroponics system of farming?

- A. Less labour involved. B. Cheap to set up.
C. Requires knowledge and skills. D. Fast way to produce crops.

QUESTION 12

Refer to the diagram showing the movement of nutrients.



What is the most environmental friendly way to maintain soil fertility from harvest?

- A. Use the waste materials as mulch. B. Cut and burn all waste materials.
C. Clear and dispose all waste materials. D. Apply the use of inorganic fertilizers.

QUESTION 13

Refer to the list of animals below.

- i. Tilapia ii. Echidna iii. Crocodile iv. Chicken v. Rabbit

Which of the following lists contains only animals that undergo internal fertilization and lay their eggs?

- A. i, ii, iii only B. i, iii, iv only C. ii, iii, iv only D. ii, iii, v only

QUESTION 14

Crocodiles and chickens have one common external body opening which they use to pass urine, faeces and for sexual reproduction purposes.

What is the name of this body opening which they have in common?

- A. Anus B. Vent C. Urethra D. Cloaca

For Questions 15 and 16, refer to the following information.

Below are the main steps in oil palm fruit processing that are not in the correct order.

- i. Threshing
- ii. Sterilization
- iii. Digestion
- iv. Weighing

QUESTION 15

What is the correct order of processing?

- A. iv, iii, i, ii B. iv, ii, i, iii
C. iv, iii, ii, i D. iv, ii, iii, i

QUESTION 16

Which of the steps above describes the process of steaming and destroying natural enzymes?

- A. iv B. iii C. ii D. i

QUESTION 17

What is the name given to the study of relationships between living things and their environment?

- A. Biology B. Botany C. Ecosystem D. Ecology

QUESTION 18

What is the name given to the crop belonging to the Grass family Poaceae or Gramineae?

- A. Cereals B. Latex C. Legumes D. Vegetables

QUESTION 19

Digestion in pigs and humans begins in the mouth.

Which of the following is first digested in the mouth?

- A. Cellulose B. Fibre C. Sugar D. Vitamins

QUESTION 20

John looks after chickens and at the same time he grows crops for consumption and to feed his chickens. The chickens' manure is used as fertilizer for the crops.

Which type of farming system does John practice?

- A. Mixed farming B. Integrated farming
C. Pastoral farming D. Ley farming

QUESTION 21

Which alternatives below correctly lists the general functions of a plant's stem?

- A. Transport nutrients, support and protect the plant
B. Transport nutrients, support and protect the plant
C. Support the plant, absorb and transport nutrients
D. Protect the plant, absorb and transport nutrients

QUESTION 22

Which of the following animals is protected by a trade protection act?

- A. Barramundi B. Trout C. Pig D. Crocodile

QUESTION 23

Most customers in developed countries want agricultural products that are produced organically. Organic coffee is an example.

Most people prefer organically grown coffee mainly because it

- A. has a higher price.
- B. has a lower price.
- C. contains fewer chemicals.
- D. is produced locally.

QUESTION 24

After shaking soil in a jar of water and allowing to settle, which soil particles will be present at the top of the jar?

- A. Clay
- B. Gravel
- C. Silt
- D. Sand

QUESTION 25

Which of the alternatives is a **BIOTIC** factor?

- A. Temperature
- B. Competition
- C. Soil pH
- D. Wind

PART B: SHORT ANSWERS (QUESTIONS 26 to 45) 20 MARKS
For each question, write the correct answer in the space provided on the ANSWER SHEET.

QUESTION 26

A common term used to refer to all plant life collectively is flora.

What other term is similarly used to collectively refer to all animal life?

QUESTION 27

Peter made his garden on the slopes of a hill. He dug drainage ditches down the slope instead of across the slope.

When heavy rain falls on Peter's garden what problem is he likely to face?

QUESTION 28

Increased agricultural activities ensure that people at the local, provincial and national levels have access to enough food to enable them to live healthy lives.

This is an advantage of agricultural activities which is referred to as improved food _____.

QUESTION 29

Biotic factors are the biological influences on the growth of plants. There are four (4) main biotic factors.

Name any one of the 4 factors.

QUESTION 30

Some soils are able to retain more water while other soils allow water to drain.

The ability of a type of soil to absorb or let water drain is called _____.

QUESTION 31

Name the scientific measure used to determine the level of acidity or alkalinity of soil where the most acidic soil is given a value of 0 while the most alkaline soil is given a value of 14.

QUESTION 32

Most agricultural plants are classified according to their uses. One particular group of crops are grown for the purpose of producing food drinks such as coffee, tea, cocoa and lemon grass.

Such crops are generally referred to as _____ crops.

QUESTION 33

There are several different types of pastoral farming systems. One such system is where a large enclosed farm (hundreds of hectares) is used for keeping livestock such as cattle, horses or sheep.

Name this type of pastoral farming system.

QUESTION 34

Materials such as compost, mulch, animal manure and NPK are added to the soil to supply nutrients to plants.

Such materials are generally referred to as _____.

QUESTION 35

NPK is an inorganic substance commonly used to add three (3) macronutrients to the soil.

What macronutrient does the letter P in these initials stand for?

QUESTION 36

Give the scientific name of the bacteria that converts nitrogen in soil to nitrates and is found in the roots of legume plants.

QUESTION 37

Name the small lumps that are found on the roots of legume plants that contain bacteria.

QUESTION 38

Which soil type is not good for general cultivation because it cannot retain water and nutrients?

QUESTION 39

Name the practice of covering bare soil around a desired crop with dead plant materials in order to prevent soil water evaporating and soil erosion.

QUESTION 40

The three (3) main economic environment levels are the national level, the provincial level and the local level. Somo coffee factory has been employing labourers to work in the factory.

Which of the main economic environment levels does Somo coffee factory impact the most?

Refer to the soil texture triangle and the information provided below to answer Questions 41, 42 and 43.

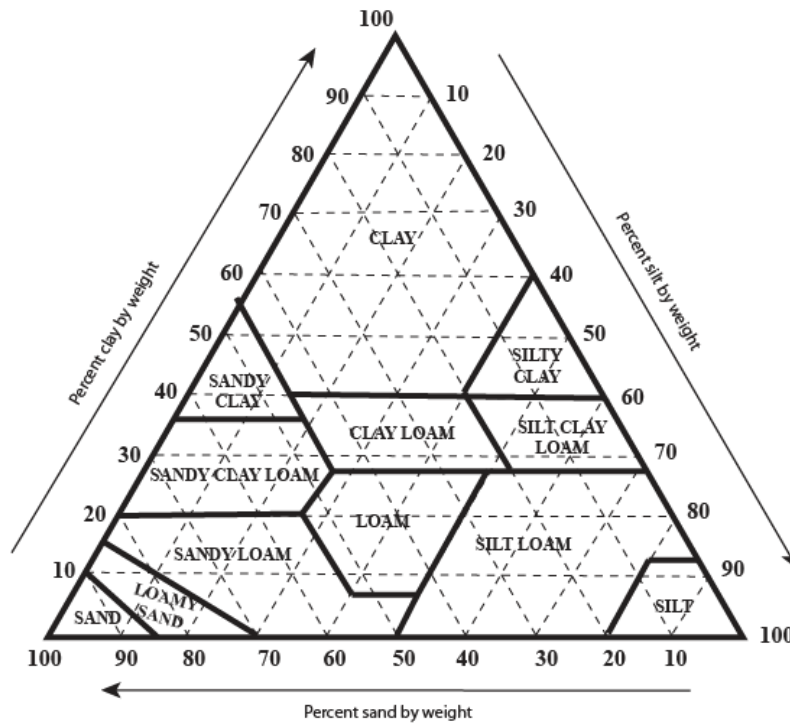


Figure 2. Soil texture triangle.

QUESTION 41

According to the soil texture triangle above, what is the highest percentage of silt that can be contained in clay soil?

QUESTION 42

A soil sedimentation test was done for four (4) soil samples P, Q, R and S. The results are shown in the table below.

| Sample | Sand (%) | Silt (%) | Clay (%) |
|--------|----------|----------|----------|
| P | 10 | 60 | 30 |
| Q | 60 | 10 | 30 |
| R | 40 | 40 | 20 |
| S | 30 | 20 | 50 |

Which of the soil samples P, Q, R or S can be classified as sandy clay loam?

QUESTION 43

What type of soil is soil sample R?

For Questions 44 and 45, refer to the following information.

The diagram below a soil sample obtained from a farm.

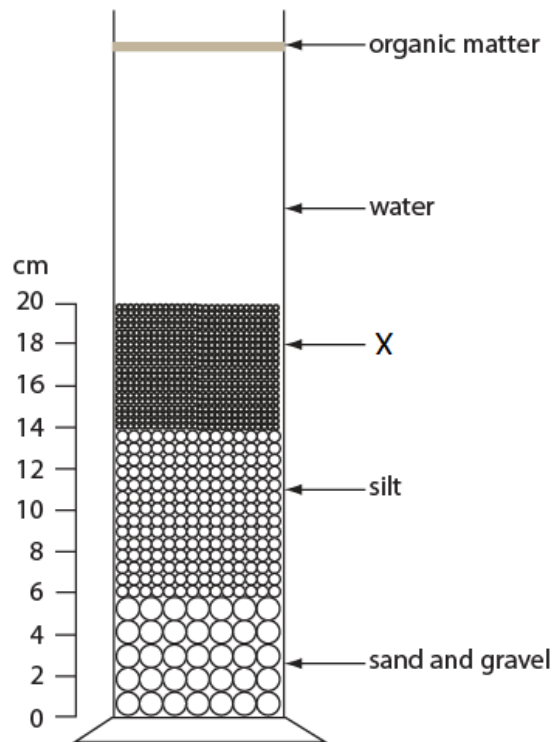


Figure 1. The result of a sedimentation test on a sample of soil from Zogi farm.

QUESTION 44

What type of soil particle is represented by the letter X.

QUESTION 45

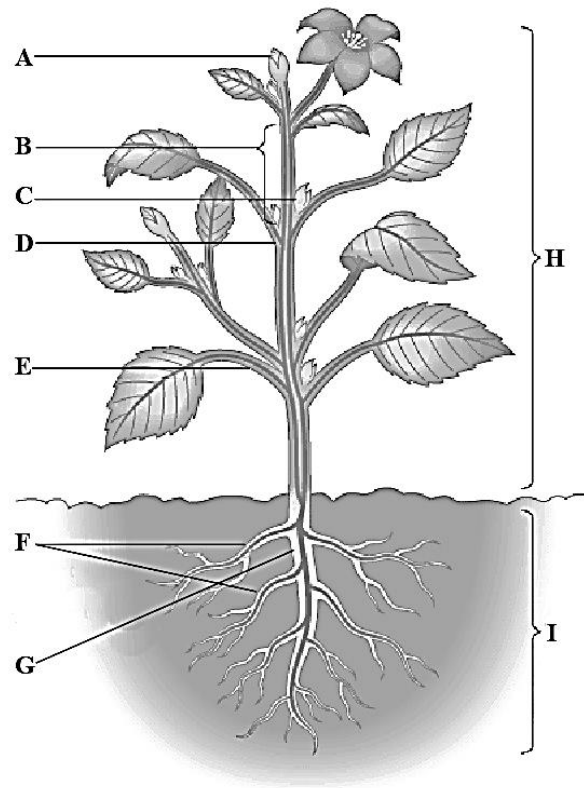
Calculate the percentage of silt in the sample.

PART C: EXTENDED RESPONSE

5 MARKS

QUESTION 46

The diagram below shows the common parts of a plant labeled **A** to **I**.



| <i>Word list</i> | | |
|------------------|---------------|--------------|
| petiole | node | shoot |
| root | auxillary bud | lateral root |
| terminal bud | primary root | internode |

Match the following letters with their names from the word list given above.

- A. _____
- D. _____
- E. _____
- G. _____
- H. _____

END OF EXAMINATION

AGRICULTURE - ANSWER SHEET



MARKER 1

| YEAR | | PROV. | | SCHOOL | | | CAND No. | | |
|--------|---|-------|--|--------|--|--|----------|--|--|
| 1 | 6 | | | | | | | | |
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PART A: (Questions 1 to 25)

Write the letter of your answer next to each question below.

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PART B (Questions 26 to 45)

Write your answer next to each question below.

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PART C (Questions 46 to 50)

Write your answer next to each question below.

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| 42 | | |
| 43 | | |
| 44 | | |
| 45 | | % |

| | | |
|----|---|--|
| 46 | A | |
| | D | |
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| | G | |
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MARKER 2

DO NOT WRITE ON THIS PAGE

YOU MAY DO YOUR ROUGH WORK ON THIS PAGE

CAREFULLY TEAR ALONG THIS PERFORATION

YOU MAY DO YOUR ROUGH WORK ON THIS PAGE