

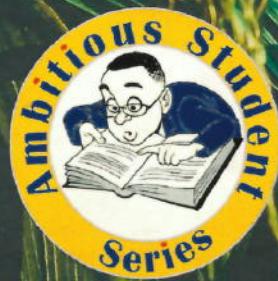
AGRICULTURE

JCE Questions & Model Answers

Ambitious Student Series



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Section A

Question Papers



Multiple Choice (50 marks)

Instruction: There are thirty questions in this section. Encircle the letter of your choice representing the right answer.

1. Nikolai Vavilov is remembered in Agriculture because
 - A. he discovered centers of origin of various animals
 - B. he discovered the origin of beans
 - C. classified plants
 - D. he discovered centres of origin of various crops.

2. An important food crop which grows very well in dambo land is
 - A. sugar cane
 - B. rice
 - C. tomato
 - D. banana

3. Farm yard manure is rich in
 - A. nitrogen
 - B. magnesium
 - C. phosphorus
 - D. zinc

6. Evaporation in Figure 1 is shown by
 - A. 1 only
 - B. 2 only
 - C. 1 and 2
 - D. 2 and 3

4. Which of the following agents contributes the most of the weathering process?
 - A. Physical
 - B. Chemical
 - C. Biological
 - D. Glaciation

5. Which of the following processes are chemical?
 1. running water
 2. hydration
 3. temperature
 4. carbonation
 - A. 1 and 3
 - B. 2 and 3
 - C. 2 and 4
 - D. 1 and 4

Figure 1 shows the hydrological cycle. Study it and answer Questions 6-8 that follow.

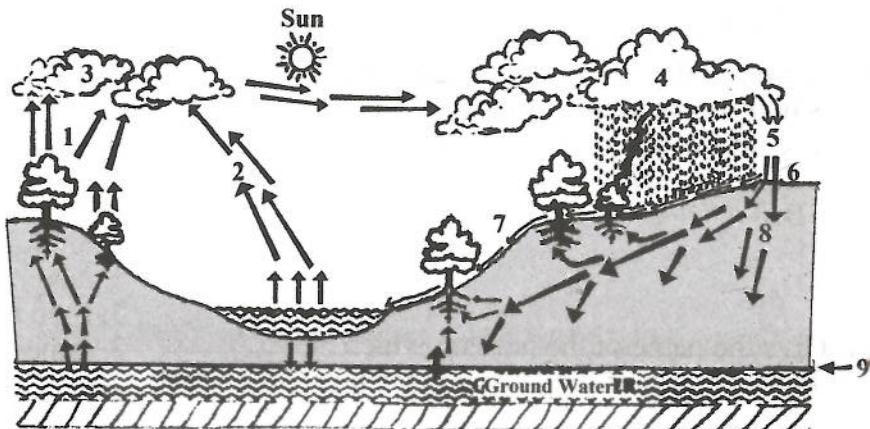


Figure 1: Hydrological Cycle

7. How can the process in 7 be reduced?
 1. by removing vegetation
 2. by making contour bands
 3. by making ridges along the slope
 4. by correct spacing
 - A. 1 and 2
 - B. 2 and 4
 - C. 1, 2 and 3
 - D. 2 and 3

8. Which number in Figure 1 represents infiltration?
- 4
 - 7
 - 5
 - 6
9. When the udder of a cow swells and clots are seen in the milk, the animal is suffering from
- tuberculosis
 - mastitis
 - milk fever
 - East Coast fever

Figure 2 shows a vertical section of soil. Study it and answer **Questions 10-12**.

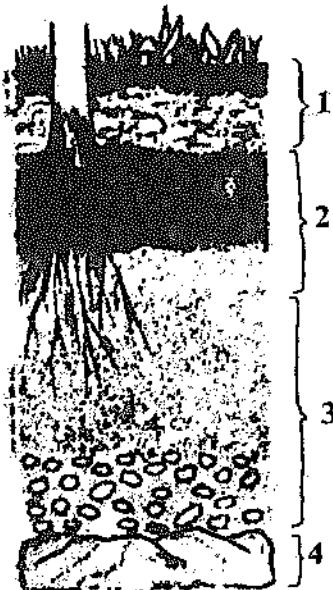


Figure 2

10. Which of the soil horizons in **Figure 2** is called a zone of mineral salts accumulation?
- 4
 - 3
 - 2
 - 1
11. Give the name of the horizon which is known as the zone of organic matter accumulation.
- 1
 - 2
 - 3
 - 4
12. What is the name of horizon 3 shown in **Figure 2**?

- unweathered rock
- weathered rock
- Top soil
- sub soil

13. The chemical for controlling maize stock borer is
- actellic
 - menazon
 - dimethoate
 - diptrex

Table 1 shows the population of a village from 1990 to 1995 with an area of 5km^2 . Study it and answer questions 14 to 17.

Year	Population of a village
1990	200
1991	230
1992	270
1993	300
1994	350
1995	400

14. What was the population density in 1994?

- 64 people/ km^2
- 50 people/ km^2
- 70 people/ km^2
- 30 people/ km^2

15. Calculate the increase in population from 1990 to 1994

- 150 people
- 200 people
- 1,370 people
- 274 people

16. What is the effect of population increase on agriculture?

- land becomes scarce
 - food becomes inadequate
 - armed robbery increases
 - environmental degradation increases
- 1 and 2
 - 1 and 3
 - 1, 2 and 4
 - 1, 2 and 3

17. How does the ground

- 1
- 2
- 3
- 4

18. Which char

- B
- C
- D

19. Re

- c

20. 1

- 1

- 21.

- 1

- 22.

- 17.** How can food supply be adequate for the growing population?
- by practicing family planning methods
 - by practicing shifting cultivation
 - by growing new varieties of crops
 - by correct land use
- 18.** Which of the following is a characteristic of an exotic pasture?
- it grows faster and matures very quickly
 - it poorly responds to fertilizer application
 - it becomes dormant during the dry season
 - it responds well to fertilizer application.
- 19.** Rosette in groundnuts can best be controlled by
- close spacing
 - uprooting infected plants
 - growing resistant varieties
- 1 only
 - 1 and 2 only
 - 1, 2 and 3
 - 4 only
- 20.** A breed of cattle reared specifically for milk production is
- Fresian
 - Zebu
 - Boran
 - Jersey
- 21.** A farmer applied 4 bags of 24:12:6 compound fertilizer per hectare. If each bag weighed 50kg, how much phosphorus was applied per hectare.
- 48kg
 - 24kg
 - 12 kg
 - 96kg
- 22.** An example of a straight fertilizer supplying phosphorus is
- single super phosphate
 - 20:20:0
 - Urea
 - DAP
- 23.** What is the importance of hardening off in vegetable growing?
- A.** to control diseases of vegetables
B. to allow the seedlings to adapt to field conditions
C. to conserve water
D. to reduce weed growth
- Figure 3** below shows the digestive system of a chicken. Study it and answer **Questions 24-26**.
-
- The diagram illustrates the digestive tract of a chicken. It starts with the crop (Q) at the top, followed by the gizzard (R). Below the gizzard is the small intestine. At the beginning of the digestive tract is the mouth, which leads to the esophagus (S). The large intestine (P) is located on the right side of the body, leading to the cloaca at the bottom right.
- Figure 3: Digestive System of a Chicken**
- 24.** Name the part labelled P of the digestive system in Figure 3.
- esophagus
 - proventriculus
 - crop
 - cloaca
- 25.** In which part of the digestive system does enzyme digestion take place?
- Q
 - R
 - P
 - S
- 26.** In which part of the digestive system of a chicken is grit found?
- P
 - R
 - S
 - Q
- 27.** The law of supply states that
- as price increases, the supply of goods also increases
 - as price increases. The supply of goods decreases
 - as price increases, the supply of goods remains the same.
 - as price decreases, the supply of goods remains the same.

28. One of the reasons why there is plenty of fish in the South-West part of Lake Malawi is because.
- there are few fishermen who catch fish
 - there are plenty of fishermen who catch fish
 - the water is shallow for easy breeding of fish
 - the water is deep for easy breeding of fish

29. The following are examples of legume pastures:
1. leucaena
 2. Rhodes
 3. silver leaf
 4. siratro
- 1, 2 and 4
 - 2, 3 and 4
 - 1, 2 and 3
 - 1, 3 and 4

Figure 4 shows a longitudinal section of a maize grain. Study it and answer Questions 30 - 33.

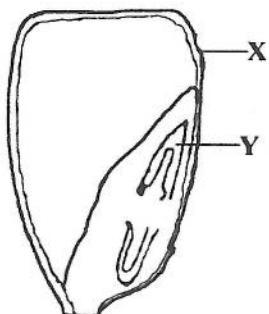


Figure 4
Longitudinal Section
of a Maize Grain

30. The structure labelled X on **Figure 4** is
- scar
 - pericarp
 - endosperm
 - coleoptile
31. Name the structure labelled Y
- radicle
 - plumule
 - coleorhiza
 - coleoptile
32. What is the function of the structure labelled Y?

- to protect the plumule
- to protect the radicle
- To grow into a shoot
- to grow into a root

33. Mention any two companies that use maize grain as a raw material
- Chituku products and National Seed company
 - Grain and milling company and ADMARC
 - Chibuku products and Grain and Milling Company
 - ADNMARC and National Seed company

34. Elasticity of demand means
- the quantity of goods which buyers are willing to buy at a given price
 - the degree of responsiveness of quantity of goods demanded to changes in price offered.
 - the degree of responsiveness of quantity of goods supplied to changes in price offered.
 - the quantity of goods which sellers are willing to offer for sale at a given price.

35. Which of the following best defines a catchment area?
- the entire area which is drained by a river
 - the area which receives high amount of rainfall
 - the upland area full of trees with streams
 - the centre area from which drainage is received by a body of water.

36. The correct meaning of over-sowing in pasture is
- sowing more seeds than required in a pasture field
 - Sowing pasture seed into an already established pasture.
 - Sowing pasture seed under a companion crop
 - Sowing pasture seed in furrows or grooves.

37. A di
imp
A.
B.
C.
D.

Table 2
Margin
Questi

Table
Land
1
1
1
1
1
1
1
1
1
1

38. V

39.

40.

41.

37. A disease that is of economic importance in cabbage is
 A. bacterial wilt
 B. Blight
 C. Rust
 D. Soft rot

Table 2 showing the Law of diminishing Marginal returns. Study it and answer Questions 38-40.

Table 2: for Question 38-40		
Land	Variable Input	Expected Yield of Maize
1	0	5 bags
1	50	10 bags
1	100	16 bags
1	150	18 bags
1	200	20 bags
1	250	21 bags
1	300	18 bags

38. What was the yield of maize when 100 kg of fertilizer was applied?
 A. 16
 B. 15
 C. 30
 D. 35
39. How much fertilizer is applied to get maximum yield?
 A. 0 kg
 B. 200 kg
 C. 250 kg
 D. 300 kg
40. The importance of the Law of diminishing marginal Returns is that it helps the farmer to know how much.
 A. input to buy
 B. of the yield to sell
 C. in put to keep
 D. input to use based on the added yield
41. What is an experiment?
 A. it is the result of an investigation
 B. it is away of finding out the truth of something or an idea.
 C. it is the thing or factor being tested
 D. It is a control

42. Why is it important to have a control in an experiment?

- A. It acts as a treatment in an experiment
- B. it is a repetition of treatments which spreads the results
- C. it serves as a comparison of results
- D. it helps to have results favoring a treatment.

43. Why are experiments important in agriculture?

- 1. to help produce improved varieties and improved breeds of livestock
 - 2. to improve methods of farming
 - 3. to help calculate yields
 - 4. to control diseases of crops and animals
- A. 1 only
 - B. 1 and 2
 - C. 2 and 3
 - D. 2 and 4

44. Liver fluke is a common parasite of

- 1. Goats
 - 2. Pigs
 - 3. Sheep
 - 4. Cattle
- A. 1, 3 and 4
 - B. 1, 2 and 3
 - C. 2 and 4
 - D. 2, 3 and 4

45. Natural pastures are sometimes burned in order to

- 1. clear land for pasture establishment
 - 2. Produce tender grass that animals can easily digest
 - 3. Control some livestock pests and parasites
 - 4. Prevent bush encroachment or scrub regrowth.
- A. 1, 2 and 3
 - B. 1, 3 and 4
 - C. 1, 2 and 4
 - D. 2, 3 and 4

46. Which grazing method is the least wasteful?

- A. rotational grazing
- B. Cut and carry method
- C. Deferred grazing
- D. Strip grazing

47. Which of the following is a storage pest?

- A. weevil
- B. Stalk borer
- C. Aphid
- D. Caterpillar

In an experiment on soil components, the following results were obtained. Use the information given below to answer Questions 48-50.

$$\text{Mass of tin} = 20\text{g}$$

$$\text{Mass of tin + fresh soil} = 30\text{g}$$

$$\text{Mass of tin + dry soil} = 25\text{g}$$

48. What soil component was being investigated in this experiment?

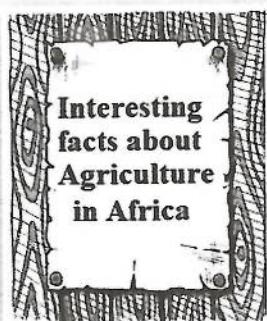
- A. Air
- B. Mineral salts
- C. Water
- D. Organic

49. Calculate the mass of the component of soil named in Question 48 above.

- A. 5g
- B. 10g
- C. 45g
- D. 50g

50. Calculate the percentage on wet basis of the component of soil named in Question 48 above.

- A. 16.7%
- B. 20%
- C. 25%
- D. 50%



Agriculture is one of the most beneficial assets a country can have. It creates more jobs and helps eliminate poverty and hunger, which are immediate problems Africa is facing. Africa's population will nearly double by 2050 and quadruple by 2100, making it harder to feed communities and generate wealth, but agriculture in Africa has the potential to flourish. In fact, Africa can add 20 percent more grain to the 2.6 billion tons of worldwide production, and nearly the same amount of fruits and vegetables. Agriculture also has the greatest potential to bring about gender and class equality by providing a source of income for women and the poor.



**SECTION A**

Multiple Choice (30 marks)

Instruction: There are thirty questions in this section. Encircle the letter of your choice representing the right answer.

1. What should layers be fed on to improve quality of eggs produced?
 1. green leaves
 2. grit
 3. maize grain
 4. layers mash
 - A. 1 and 2
 - B. 1 and 4
 - C. 2 and 3
 - D. 3 and 4

2. What is the role of Agriculture Extension in food security?
 - A. to teach new technologies to farmers
 - B. to develop new technologies
 - C. to give out loans to farmers
 - D. to distribute food to farmers

3. What should a farmer do to labour when there is inadequate technology?
 - A. reduce it
 - B. increase it
 - C. Maintain it
 - D. sell it

4. Which of the following are natural resources?
 1. land
 2. plough
 3. cattle
 4. water
 - A. 1 and 2
 - B. 1 and 4
 - C. 2 and 3
 - D. 3 and 4

5. Which of the following livestock feeds has the highest protein content?
 - A. chick mash
 - B. pig finisher
 - C. maize meal
 - D. green feed

6. Which main risk does a farmer face with loans that are meant for crop production?
 - A. low repayment capacity
 - B. uncertainty in weather condition
 - C. fluctuation of the local currency
 - D. misuse of funds

7. Which of the following combinations represents the correct components of soil?
 - A. water, humus, dry leaves and air
 - B. humus, fertility, water and soil
 - C. soil water, humus, soil depth and air
 - D. soil water, humus, soil air and rock particles

8. Which of the following are crop storage pests?
 1. Weevil
 2. army worm
 3. grain moth
 4. stalk borer
 - A. 3 and 4
 - B. 2 and 3
 - C. 1 and 2
 - D. 1 and 3

9. Which of the following are variable farm inputs?
 1. permanent labour
 2. casual labour
 3. feed
 4. rent on land

- A. 1 and 2
B. 1 and 4
C. 2 and 3
D. 3 and 4

10. Which of the following are important records for layers kept by poultry farmers?

1. number of egg collected per day
 2. amount of feed consumed per day
 3. weight of chickens collected per day
 4. cost of chickens insured at buying the chickens
- A. 1, 2 and 3
B. 1, 2 and 4
C. 1, 3 and 4
D. 2, 3 and 4

11. Which of the following are some of the characteristics for Chinchilla breed of rabbits?

- A. pick eyes and very red eye balls
B. black nose, dark brown short eyes
C. silvery colour, varying from dark to grey
D. pink eyes, brown short ears

Table 1 shows results of an experiment done on a farm. Use it to answer questions 12-14.

Table 1: Results of an experiment

Plot Number	1	2	3	4
Plot Size (m^2)	50	50	50	50
Urea (kg/ha)	0	50	100	200
Average yield of beans (kg)	21	39	47.5	14.0

12. What was the aim of the experiment in Table 1?

- A. to find out the effects of different fertilizers on bean yield
B. to find out the effects of Urea on bean yield
C. to find out the effects of different application rates of urea on bean yield
D. to find out the effects of bean yield on different rates of Urea

13. Which of the following is the reason for low yield in plot 4?

- A. there was inadequate nitrogen for the beans
B. there was too much nitrogen for the beans
C. there was a wrong fertilizer for the beans
D. there were a lot of pests which attacked the beans

14. Convert the yield in plot 4 in kilograms per hectare.

- A. 2800kg
B. 280kg
C. 28kg
D. 2.8kg

15. Which of the following diseases in pigs is characterised by blood in faeces, staggering and difficult breathing?

- A. mastitis
B. African swine fever
C. pneumonia
D. anaemia

16. Which of the following are the advantages of drip system of irrigation? It ensures that;

1. water reaches the roots of plants
 2. weeds growing between planting stations wilt and die
 3. water is evenly distributed in the field
 4. water loss due to evaporation is reduced
- A. 2, 3 and 4
B. 1, 3 and 4
C. 1, 2 and 3
D. 1, 2 and 4

17. Which of the following combinations are decisions of farm management?

1. where to produce
 2. how to produce
 3. how much to produce
 4. what to produce
- A. 2, 3 and 4
B. 1, 2 and 4
C. 1, 2 and 3
D. 1, 3 and 4

18. Which of the following is the most suitable physical conservation measures for soil on steep land?

- A. c
B. c
C. c
D. c

19. What increases the rate of photosynthesis?

- A.
B.
C.
D.

20. What is the main cause of metritis?

1.
2.
3.
4.

21. What is the main advantage of drip irrigation?

1.
2.
3.
4.

22.
3.
4.

23.
4.

- 24.

- A. construction of cut-off drains
 B. constructing terraces
 C. constructing contour bunds
 D. constructing graded bunds
- 19.** What is the importance of phosphorous in crops?
 A. It helps in seed formation
 B. It helps in photosynthesis
 C. It strengthens plant cell walls
 D. It regulates the availability of nitrogen
- 20.** Which of the following are cultural methods of controlling weeds?
 1. use of crop rotation
 2. use of thick organic mulch
 3. Early planting
 4. Use of herbicides
 A. 1, 3 and 4
 B. 1, 2 and 4
 C. 1, 2 and 3
 D. 2, 3 and 4
- 21.** Which of the following combinations are straight fertilizers?
 A. Urea, sulphate of ammonia, B-compound
 B. 23:21:0+4s, potassium sulphate, Urea
 C. Double Super Sulphate, CAN, Humus
 D. Sulphate of ammonia, single super phosphate, Muriate of potash
- 22.** Which of the following are symptoms of maize smuts?
 A. yellow or red patches on leaves
 B. leaves turn yellow
 C. yellow stripes on leaves
 D. black powdery spores
- 23.** In poultry production, rearing of chicks is referred to as
 A. brooding
 B. kidding
 C. calving
 D. farrowing
- 24.** Which of the following best describes the relationship between demand and supply of goods in a market?
 A. when demand increases and supply remains constant, the price falls
 B. when supply increases and demand falls, the price rises
 C. when supply increases and demand remains constant, the price falls
 D. when demand decreases and supply remains constant, the price increases
- 25.** The status of women farmers in Malawi can be achieved by
 A. encouraging them to grow cash crops only
 B. giving them money each month
 C. making agricultural loans accessible to them
 D. establishing farmers' clubs for women only
- 26.** A measure of the coarseness and fineness of the soil particles is
 A. organic constituents
 B. insoluble inorganic constituents
 C. soil texture
 D. soil structure
- 27.** Why is cash sometimes referred to as liquid capital?
 A. because it is money available to the farm
 B. because it is used to buy necessary materials for production
 C. because it is an input
 D. because it can easily be changed to other forms of capital

Use the following information to answer questions 28 and 29.

A farmer bought 2 bags of Urea from ADMARC each weighing 50kg for his/her maize garden at K1,200.00 per bag. He/she sold 4 bags of maize to ADMARC each weighing 50kg at K800.00 per bag. He/she spent K300.00 on casual labour

- 28.** How much profit was made on this farm?
 A. K3,200.00
 B. K2,700.00
 C. K2,400.00
 D. K500.00

29. How many kilograms of nitrogen were applied on this farm?

- A. 23kg
- B. 46kg
- C. 92kg
- D. 100kg

30. What is the main advantage of canning over drying in fruit preservation?

- A. more water is retained
- B. the contents do not lose taste
- C. the contents never go bad
- D. more nutrients are preserved

39b. For

39

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40a. D

40b. E

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41a

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42

42

32a. State any one reason for the need to adjust temperature in a pig house (1mark)

32b. Explain any one way in which a farmer may adjust temperature in a pig house (2marks)

33a. Define "management" as a factor of production (1mark)

33b. Explain any one characteristic of land that affects agricultural production

34a. What is the best time to apply a phosphatic fertilizer in a crop field? (1mark).

34b. Explain the reason for the answer to question 34(a) (2marks).

35. Figure 1 is a diagram showing some of the soil and water conservation methods

35a. Identify the name of the method of conservation labelled X (1mark)

35b. How does the conservation method in question 35(a) help to conserve soil and water? (2marks).

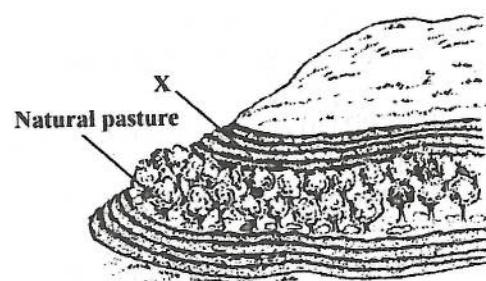


Figure 1: Soil and water conservation methods

36. Figure 2 is a diagram showing an example of a weathering process of rocks



Figure 2: An example of a weathering process of rocks

36a. Identify the weathering process in Figure 2 (1mark)

36b. Explain one effect of roots of the plant shown in Figure 2 on soil formation (2marks)

37. State any three steps that are followed when constructing a fence for a vegetable garden (3marks).

38. Explain how each of the following affects agricultural production:

38(a) decrease in product price (2marks).

38(b) quota system (2marks).

39a. Describe any two qualities of a good seed (4marks).

39b. Form 2 students planted 180 seeds on a seed bed and 100 of the seeds germinated.

39b(i) Calculate the germination percentage. Show your working (2marks)

39b(ii) Give a recommendation following the results in question b(i). (2marks).

40a. Describe any two characteristics of a good broiler house (4marks)

40b. Explain two reasons for providing different types of feed to chickens at different stages of growth (4marks).

41. Figure 3 is a diagram showing the stomach of a ruminant

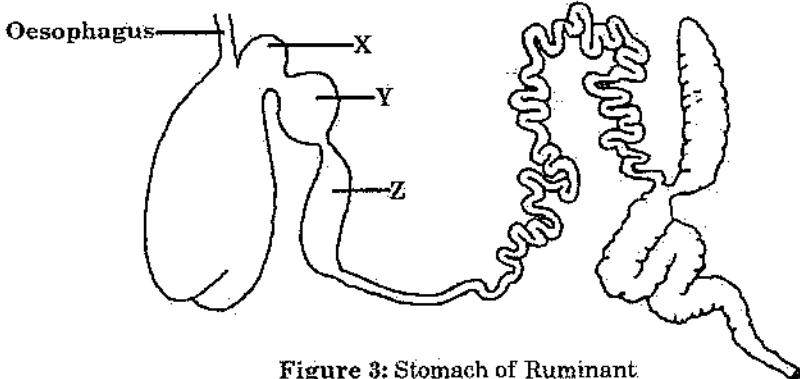


Figure 3: Stomach of Ruminant

41a(i). Name the part labelled Y (1mark)

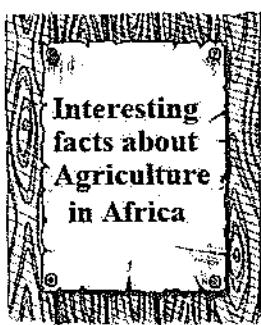
41a(ii). What part in the digestive system of poultry performs similar functions as the part labelled Z? (1marks).

41a(iii). Why is a protein ration not necessary for the animals with the stomach shown in figure 3? (2marks)

41b. Explain two functions of the part labelled X (4marks)

42a. What is the relationship between family size and food security? (2marks)

42b. Explain any two ways in which proper food distribution at national level ensures food security for the growing population (4marks).



Smallholder farms are family farms that are less than seven acres and form 80 percent of Africa's farmland. There are 33 million family farms that are under four acres in Africa. Research shows that job creation is better capitalized, and investors receive more for their money on smallholder farms than industrial farms. Many farmers in Zambia, have over 24 acres of land and direct access to markets and inputs such as fertilizer. On the other hand, larger family farms with good soil and access to markets are considered low risk due to receiving aid.

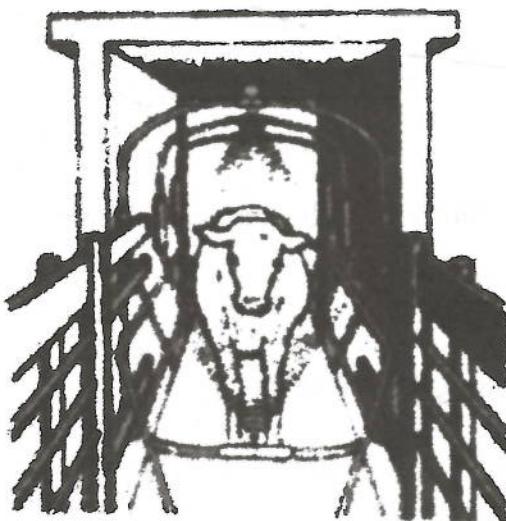
Included are welfare, cheaper food and crop insurance. This allows farmers to take risks and increase productivity, such as growing crops for profit. Low risk means access to credit and therefore valuable inputs that will increase yield. The success of many farms depends on financing and resources.



**SECTION A****Multiple Choice (30 marks)**

Instruction: There are thirty questions in this section. Encircle the letter of your choice representing the right answer.

Figure 1 is a diagram of a farm structure. Use it to answer questions 1 and 2.

**Figure 1****1.**

What is the name of the farm structure?

- A. cattle crush
- B. spray race
- C. dip tank
- D. cattle rank

2. What is the structure used for?

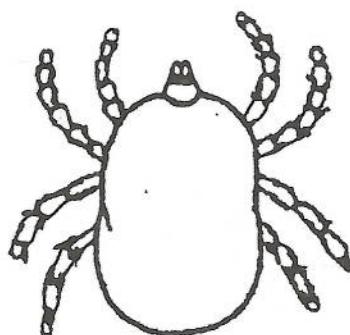
- A. controlling ticks by showering animals with chemicals
- B. controlling ticks by dipping the animal in chemicals
- C. holding animals so that they can be closely inspected.
- D. keeping animals when they are about to give birth.

3. Which of the following are examples of fixed inputs for a farmer who grows vegetables and keeps chickens?

- 1. fertilizer
 - 2. Poultry
 - 3. Sprayer
 - 4. Permanent labour
- A. 1 and 2
 - B. 2 and 3
 - C. 3 and 4
 - D. 1 and 4

- 4.** Which of the following is the main advantage of keeping layers under a deep litter system?
- A. A large number of birds can be kept in small area
 - B. It increases egg production
 - C. Egg collection is easy
 - D. Birds are protected from diseases

Figure 2 is a diagram of a parasite of animals. Use it to answer questions 5 to 7.

**Figure 2**

5. What damage does this parasite cause to animals?

- A. It sucks blood
- B. It sucks digested food
- C. it destroys tissues
- D. It damages the skin

7. Which of the following ways can help to control the parasite?

- A. feeding animal properly
- B. Putting new stock in quarantine
- C. Spraying animals frequently with chemicals
- D. Avoiding grazing animals in thick forests.

8. Which concepts of farm business management help farmers to make proper decisions on a farm?

1. profit and loss
 2. farm records
 3. financing
 4. budgeting
- A. 2 and 4
 - B. 1 and 3
 - C. 2 and 3
 - D. 1 and 4

9. In an experiment, it was concluded that seeds stored in a granary could germinate while those stored in a refrigerator could not. The aim of the experiment was to find out the effect of
 A. storage facilities on germination
 B. air on germination
 C. temperature on germination
 D. humidity on germination

10. A farmer planted 840 seeds. Forty percent of the seeds germinated. How many seeds did not germinate?

- A. 336
- B. 504
- C. 560
- D. 630

11. How can the development of gullies in a grazing area be controlled?
 1. feed animals in their khola
 2. plant bananas in the gullies
 3. use new routes to the grazing area
 4. relocate animals to a new grazing land
 A. 1, 2 and 4
 B. 1, 2 and 3
 C. 2, 3 and 4
 D. 1, 3 and 4

Figure 3 shows a set up of an experiment on soil composition. Cylinder X contained 25cm^3 water and cylinder Y contained

25cm^3 soil. Later contents from the two cylinders were mixed and the results are shown in cylinder Z. Use this information to answer questions 12 and 13.

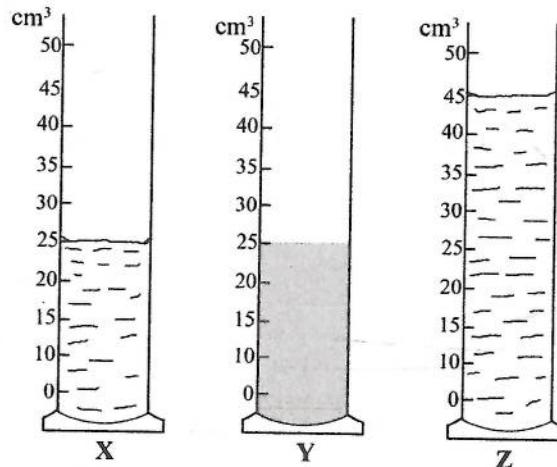


Figure 3

12. What soil component was being investigated in this experiment?

- A. air
- B. organic matter
- C. water
- D. inorganic matter

13. Calculate the percentage of the soil component under investigation.

- A. 5 percent
- B. 10 percent
- C. 20 percent
- D. 90 percent

15. A farmer erects a 3 metre high brick fence around a sorghum field to prevent wind from lodging young sorghum plants. Which of the following is most likely to be a bad effect of the fence on the crop?

- A. It would fall and destroy all plants
- B. the plants would receive sunlight for few hours
- C. There will be no pollination since wind is blocked
- D. no money would be saved to purchase inputs for sorghum.

15. Which of the following is a way of improving water logged soils?

- A. irrigating the soils
- B. draining excess water
- C. mulching the soil
- D. applying organic matter

Table 1 shows manure obtained from two types of animals of different ages. Use it to answer Questions 16 and 17.

Table 1				
Manure type	P	Q	R	S
Type of animal	Goat	Goat	Pig	Pig
Age of animal	4	12	4	12

16. Which manure is of higher quality?

- A. P
- B. Q
- C. R
- D. S

17. If manure P and R were kept under shade while Q and S were Q and S were kept in an open space. Which manure would have greater ability to improve crop yields?

- A. P
- B. Q
- C. R
- D. S

18. What is the safest way of carrying a rake? It should be carried

- A. on the shoulder with blade up
- B. on the shoulder with the blade down
- C. in the hand with the blade up
- D. in the hand with blade down

19. What factor distinguishes "mature soil" from "young soil" when a pit is dug 3 meters deep in each soil?

- A. Depth of subsoil
- B. presence of micro-organisms
- C. presence of plant roots
- D. colour of subsoil

20. Which of the following gives the correct order of change of farming systems when a farmer shifts chickens from a traditional house into a deep litter house?

- A. shifting cultivation to ranching
- B. shifting cultivation to intensive
- C. free range to intensive
- D. free range to ranching

Table 2 shows data for maize enterprises. Use it to answer questions 21 to 23.

Enterprise	Yield (kg/Ha)	Price (MK/kg)	Seed Cost (MK)	Fertilizer cost (MK)	Casual Labour cost (MK)
maize	2000	11	3000	8000	2500

21. What is the total income for the enterprise?

- A. MK22,000
- B. MK15,500
- C. MK8,500
- D. MK2,000

22. What is the total variable cost of the enterprise?

- A. MK8,000
- B. MK10,000
- C. MK11,000
- D. MK13,500

23. What is the gross margin for the enterprises?

- A. MK22,000
- B. MK11,000
- C. MK8,500
- D. 3,000

Figure 4 shows a demand curve for beans at a market. Use it to answer questions 24 and 25.

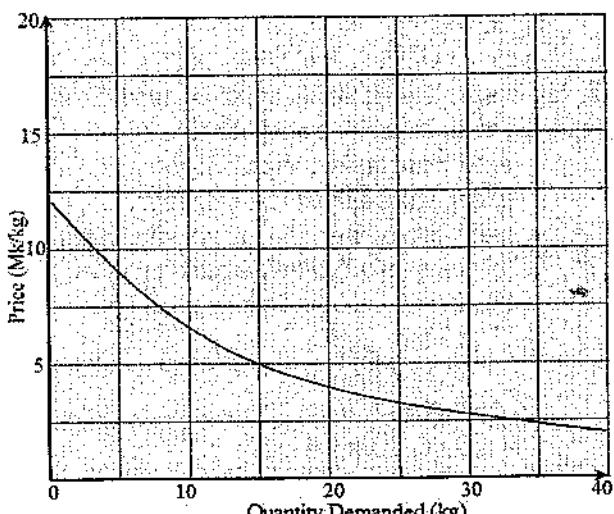


Figure 4

24. At which price would buyers not want to buy any beans at the market?
- K5.00
 - K7.00
 - K10.00
 - K12.00

25. What would be the quantity of beans supplied to the market if the price was K5/kg?
- 10kg
 - 15kg
 - 30kg
 - 40kg

Figure 5 is a diagram of soil conservation structure. Use it to answer questions 26 and 27

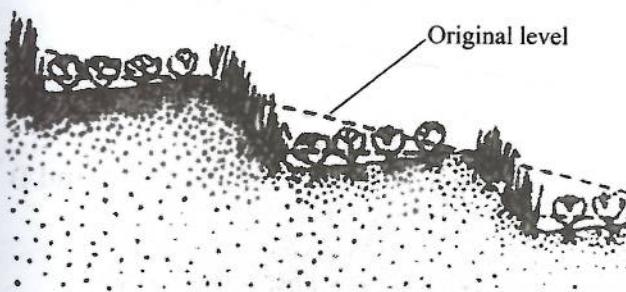


Figure 5

26. Name the soil conservation structure.
- contour bund
 - Steps
 - Graded bunds
 - Terraces
27. How does the structure conserve soil?
- It rids surface run-off away safely
 - provides ground cover
 - it reduces speed of surface run-off
 - it stores water

In an outbreak that occurred at a poultry farm many chicks were found with bloody diarrhea. Use this information to answer questions 28 and 29.

28. Name the disease that attacked the chickens.
- diarrhea
 - new castle
 - fowl pox
 - coccidiosis
29. Which of the following sanitary measures could be used to control the disease?
- Slaughter and bury infected chicks
 - keep litter clean and dry
 - Cover the windows to prevent wind and dust from getting into the house.
 - Provide a food bath to disinfected chick feet before entering the poultry house

30. What is the importance of raising a proportion of female farmers in a club?
- raises participation of females in decision making
 - promotes team work between males and females
 - relieves men from work and gives them more resting time
 - increases access of females to extension and credit services.
- 1, 2 and 3
 - 1, 2 and 4
 - 1, 3 and 4
 - 2, 3 and 4

SECTION B (36 marks)
Answer all questions in the spaces provided

- 31a. Explain any one difference between roughages and concentrates (2marks).
- 31b. Why is it important to include calcium in feeds for layers? (1mark)
- 31c. In which group of feeds for poultry is ox-vit? (1mark)

32. Figure 6 is a graph of supply of rice at Kundwe market as affected by changes in price. Use it to answer questions that follow.

32a. Find the price at which 26kg of rice is supplied (1mark)

32b(i). What will happen to quality supplied if the price is reduced to 40 MK/kg?

32b(ii). Suggest one reason for your answer in b(i) (2marks).

32c. Explain one way in which change in the price of rice may affect quantity to be supplied at the market? (2marks)

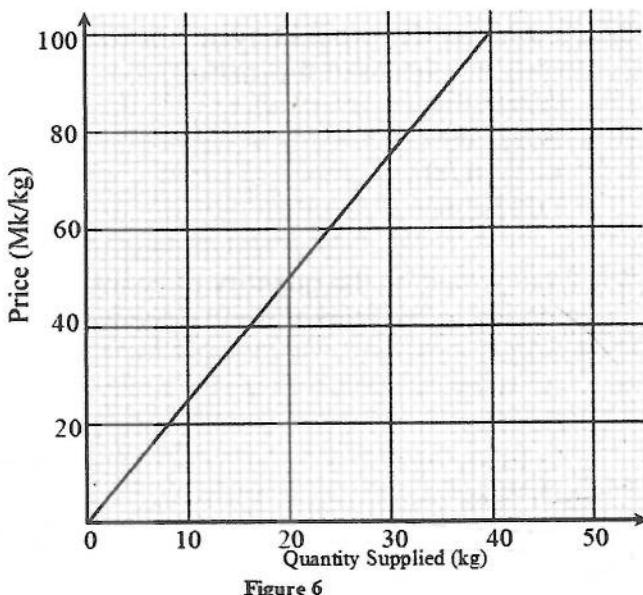


Figure 6

33. Figure 7 shows a digestive system of poultry. Use it to answer questions that follow.

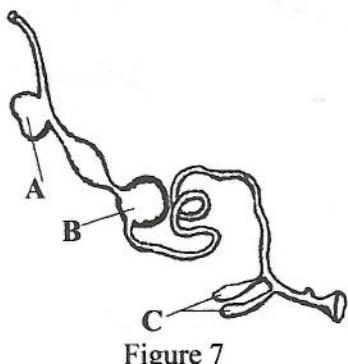


Figure 7

33a. What is the name of the part labelled C? (1mark)

33b. Give any one function of each of the parts labelled A and B (2marks).

33c. Which part of the digestive system is responsible for production of gastric juice?

34. Mwayi carried out an experiment to find out the effect of weeding on yield of beans. The experimental plot was designed as shown in the table.

Plot	Block1	Block2	Block3
1	weeded	weeded	weeded
2	unweeded	unweeded	unweeded

34a(i). What was wrong with the design? (1mark)

34a(ii). Explain one effect of the design on the results of the experiment (2marks).

34b. Which of the treatment was a control? (1mark)

35. Mrs. Beula grows maize and beans on the same piece of land at the same time.

35a. Name the type of farming system practiced by Mrs. Beula (1mark).

35b. Explain any two ways in which the farming system mentioned in 35(a) can ensure food security (4marks).

36a. State any three characteristics of land that affect agricultural production (3marks).

36b. Explain any one management decision a farmer has to make in order to increase production and profit on a farm (2marks).

37. Figure 8 shows one of the irrigation methods used in Malawi. Use it to answer the questions that follow.

37a. Name the irrigation system (1mark)

37b. State any two limitations of the irrigation system (2marks).

38a. Define "capital" as a factor of production (1mark).

38b. Explain any two ways in which HIV/AIDS can affect labor as a factor of production (4marks).

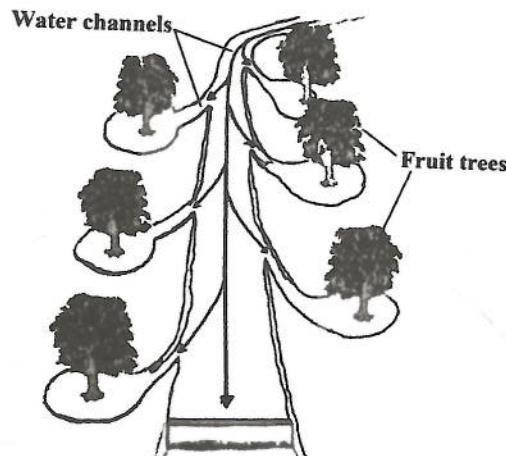


Figure 8

SECTION C (34 marks)

Instruction: Answer all the questions in the spaces provided

39a. Explain three ways in which vegetation helps to conserve soil and water (6marks).

39b. State any two ways of conserving forests. (2marks).

39c. Explain any one effect of deforestation on the environment (2marks).

40a. State any two aims of using improved farming technology (2marks)

40b. Mention any two examples of improved farming technologies that are used in animal production (2marks).

40c. Explain any two factors to consider when choosing the type of improved farming technology to use (4marks)

41. Figure 9 shows a diagram of different pests which attack vegetables. Use the diagrams to answer questions that follow.

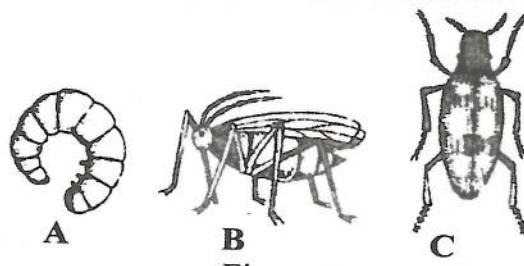


Figure 9

41a. Name the pests labelled A, B and C (3marks)

41b. What damage does the pest labelled B cause to beans?

41c. Describe how the pest labelled A attacks vegetables (2marks).

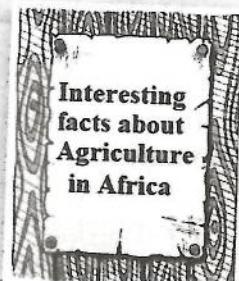
41d. State one way of controlling each of the pests labelled B and C (2marks).

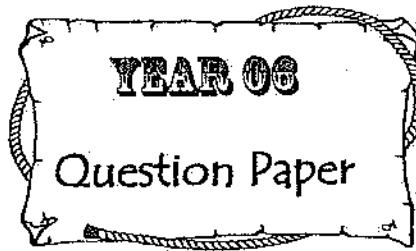
42a. Explain any two ways in which early weeding in a groundnuts field is important (4marks).

42b. Describe any two methods that are used to weed in a groundnuts field (4marks).



Women in Africa represent nearly 70 percent of the workforce in agriculture and contribute up to 90 percent of the labour, but many women lose land after losing a husband. In fact, in Zambia, nearly 33 percent of widows lose access to family land. Unlike women, men have greater access to productive resources and therefore produce more per acre. By giving women access to resources, agriculture in Africa can produce up to 30 percent more and reduce hunger by 12 to 17 percent. In other words, women in Africa have the potential to feed as much as 150 million people.



**SECTION A**

Multiple Choice (30 marks)

Instruction: There are thirty questions in this section. Encircle the letter of your choice representing the right answer.

10. W
ind

- 1.** Which of the following poultry breeds is a broiler?

- A. Shaver
- B. Indian River
- C. Hyline
- D. White leghorn

- 2.** Farmers should inject piglets with iron in order to _____

- A. fatten them
- B. prevent anaemia
- C. strengthen the teeth
- D. prevent scurvy

- 3.** Which of the following types of irrigation requires sloping land?

- A. Sprinkler
- B. flood
- C. basin
- D. furrow

- 4.** Why is it advisable to have a thatched roof than an iron sheet roof in a pig house?

- A. Thatching grass is cheaper than iron sheets
- B. The grass keeps the pens warm at night and cool during the day
- C. The grass discourages multiplication of pig louse
- D. The grass encourages ventilation

- 5.** Which of the following cultural practices would control leaf spot in tomatoes?

- 1. using clean seeds
- 2. practising crop rotation
- 3. uprooting and burning infected

plants thinning seedlings

- A. 1, 2 and 3
- B. 1, 2 and 4
- C. 1, 3 and 4
- D. 2, 3 and 4

- 6.** Which of the following determine the quality of land that affect agricultural production?

- 1. soil structure
- 2. size of the land
- 3. soil texture
- 4. location of the land

- A. 1 and 2
- B. 1 and 3
- C. 2 and 4
- D. 3 and 4

- 7.** Which of the following poultry diseases is likely to attack chicks in a damp breeding house?

- A. Newcastle
- B. Gumboro
- C. Coccidiosis
- D. Fowl pox

- 8.** How does an intensive farming system help to provide enough food to growing population?

- A. provides more land for growing crops
- B. allows the growing of only one crop enterprise
- C. allows the use of high levels of technology
- D. uses low levels of inputs

11. V
ha

12

9. Which of the following crops are drought tolerant?
- maize
 - cassava
 - sweet potatoes
 - groundnuts
- 1 and 3
 - 1 and 4
 - 2 and 3
 - 2 and 4
10. Which of the following vegetables is indigenous to Malawi?
- Cabbage
 - turnips
 - black jack
 - rape
11. What should a farmer do when a sow has more piglets than teats?
- kill the weak piglets
 - raise the extra piglets with diluted cow's milk
 - transfer the extra piglets to a foster sow
 - clip the teeth of the extra piglets
- 1 and 3
 - 1 and 4
 - 2 and 3
 - 2 and 4
12. Women are not able to produce enough food because they _____
- have limited access to extension facilities
 - do less farm work than men
 - are only interested in producing cash crops
 - are given less chance to participate in decision making
- 1 and 2
 - 1 and 4
 - 2 and 3
 - 3 and 4
13. If a farmer plants maize at 90cm by 90cm, thinning should be done when
- 1 seedling emerges
 - 2 seedlings emerge
 - 3 seedlings emerge
 - 4 seedling emerge
14. Which of the following factors limit the supply of agricultural products?
- high cost of production
 - low price of agricultural products
 - low cost of production
 - increase quota of products
- 1 and 2
 - 1 and 3
 - 2 and 4
 - 3 and 4
15. Which of the following is the function of tie-ridges in groundnut field?
- holding water in furrows
 - carrying water away from the garden
 - preventing evaporation
 - controlling weed growth
- Figure 1** shows a diagram showing supply and demand curves for fish at a certain fish industry. Use it to answer questions 16 and 18.
-
- Figure 1
16. Which of the following prices per kilogramme was fair to both buyers and sellers?
- K300
 - K250
 - 200
 - 50
17. What was the demand for fish when the price was K250 per kilogramme?
- 200kg
 - 400kg
 - 600kg
 - 800kg
18. The effect of change in price on supply of fish is that when price _____
- increases supply decreases
 - decreases supply increases
 - increases supply increases
 - decreases supply remains the same

19. Which of the following problems are associated with overgrazing?

1. low run-off

2. high infiltration

3. low pasture recovery

4. bare ground

A. A 1 and 2

B. 1 and 3

C. 2 and 4

D. 3 and 4

20. A farmer should construct a pig rearing pen with a small opening to the creep area to allow _____

- A. piglets have access to creep feed
- B. air to enter the rearing pen
- C. piglets to have access to warmth
- D. pig droppings go out when cleaning

Figure 2 is a graph showing land holdings for smallholder farmers. Use it to answer questions 21 to 23.

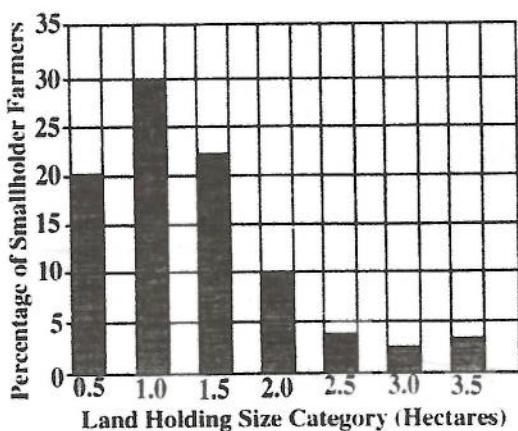


Figure 2

21. What percentage of the smallholder farmers cultivated 1.0 hectare of land?

A. 10

B. 20

C. 22

D. 30

22. How many hectares of land were cultivated by 10 percent of the smallholder farmers?

A. 0.5

B. 2.0

C. 2.5

D. 3.5

23. What conclusion could be drawn from Figure 2?

- A. Smallholder's contribution towards food supply is small
- B. Land is a constraint to small holder farming
- C. There is low use of technologies in smallholder farming
- D. The land is generally controlled by men

24. What method of weeding should be applied to flowering groundnuts?

- A. banking
- B. uprooting
- C. Light hoeing
- D. using a cultivator

25. Which of the following are the main concepts of farm business management?

- 1. labour
- 2. financing
- 3. production
- 4. land

A. 1 and 2

B. 1 and 4

C. 2 and 3

D. 3 and 4

26. Which of the following farming practices would help to control soil erosion?

- 1. cultivating marginal lands
- 2. slash and burn system of farming
- 3. making ridges across the slope
- 4. rotational grazing

A. 1 and 2

B. 1 and 3

C. 2 and 4

D. 3 and 4

27. Which of the following is a symptom of a kidney worm infection in pigs?

- A. paralysis of hindquarters
- B. Pot belly
- C. Difficult breathing
- D. Blood diarrhoea

Table 1 (next page) shows yield of maize obtained on an agricultural experimental plot for different varieties of maize that received the same type and amount of fertilizers. Use it to answer Questions 28 and 29.

Varie
MH12
MH16
NSC
Local

28. Th
ou
A

31a

31b

32a

32b

33a

33b

34a

34b

Variety of maize	Yield (Kg)
MH12	4.5
MH16	3.5
NSCM41	3.0
Local	2.0

28. The aim of the experiment was to find out the effect of _____
- Fertilizers on different varieties of maize
 - Different plots on different varieties of maize
 - Fertilizers on different plots
 - Different varieties of maize on yield

29. What was the yield of maize obtained from the control?
- 2.0kg
 - 3.0kg
 - 3.5kg
 - 4.5kg

30. Which of the following signs would show that groundnuts are ready for harvesting?
- Brown spots inside the pod
 - Brown spots on leaves
 - Drying of leaves
 - Yellowing of leaves

SECTION B (36 marks)

Answer all questions in the spaces provided

- 31a. Define the term "demand" as used in Agriculture. (1mark)
- 31b. Explain how each of the following factors determine the demand for beef at a market
- 31b(i) income of consumers (2mrks).
 31b(ii) size of the population (2marks).
- 32a. State any two characteristics which a farmer should consider when selecting a sow for breeding (2marks).
- 32b. Describe the process of weaning in pigs (2marks).
33. Figure 3 is a diagram of a poultry house. Use it to answer the questions that follow.
- 33a. Name the type of poultry house (1mark)
- 33b. State any three qualities of a good poultry house shown in Figure 3 (3marks).
- 34a. Mention any one example of a top dressing fertilizer that can be applied to maize crop. (1mark).
- 34b. Describe how fertilizer is applied in maize crop using dollop method (3marks).



Figure 3

35a. Explain one way in which time can limit women's contribution to food production (2marks).

35b. Explain any two food habits that may result into food insecurity to families in Malawi (4marks)

36. Figure 4 is a diagram of maize pest. Use it to answer the questions that follow.

36a. Name the pest

36b. Explain any two ways in which the pest damages maize (4marks)

36c. Mention the chemical that is used to control the pest (1mark)

37. Describe any two advantages of drip irrigation (4marks)

38. State any three advantages of organic fertilizers (3marks).

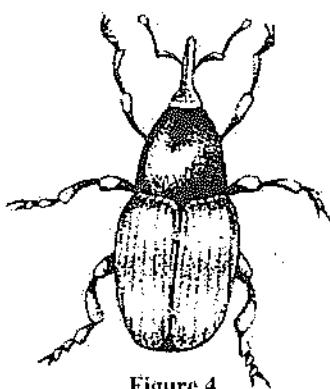


Figure 4

SECTION C (34 marks)

Instruction: Answer all the questions in the spaces provided

39. Mrs Phiri plans to start rearing broiler chickens for sale. In addition to locally made feed, she wants to buy 200 chicks at K70.00 each and 2 bags of chick mush at K3,000.00 per bag. She intends to sell the broilers at K400.00 each. Use this information to answer the questions that follow.

39a. Calculate the estimated cost of production for Mrs Phiri. Show your working. (3marks).

39b. Lay out budget for Mrs Phiri (5marks).

40a. Explain one advantage of each of the following factors to a vegetable farmer:
(i) nearness to the market (2marks) (ii) nearness to water supply (2marks).

40b. Why are farmers advised to carry out each of the following farming practices to seedlings in a vegetable garden? (i) thinning (2marks) (ii) hardening off (2marks).

41a. Mention any two agents of physical weathering (2marks)

41b. Explain one way in which time influences soil formation (2marks)

41c. Explain any two ways of maintaining soil fertility in a garden (4marks).

42a. If maize requirement for an adult per year is six 50 kilogramme bags, how many kilogrammes of maize are required for one adult per year? (1mark).

42b. Table 2 shows maize produced by families A and B in a year. All members in each of the two families were adults. Use it to answer the questions that follow.

Table 2		
Family		
Family size	4	6
Maize produced/ yr (kg)	1500	1750

42b(i). Calculate the food requirements for families A and B. Show your working (4marks).

42b(ii). Which family is food insecure? Show your working (5marks).

**SECTION A**

Multiple Choice (30 marks)

Instruction: There are thirty questions in this section. Encircle the letter of your choice representing the right answer.

1. Which of the following are external parasites?
 - A. mites and tapeworms
 - B. fleas and liverflukes
 - C. tamps and lice
 - D. ticks and roundworms

2. Which of the following is a crop processing structure on a farm?
 - A. Granary
 - B. Maize silo
 - C. Tobacco barn
 - D. Grain tank

Table 1 shows results of an experiment on egg production for layers. Use it to answer Questions 3 to 5.

Table 1		
Treatment	# of additional hrs exposed to light per day	# of eggs laid
1	0	200
2	2	230
3	4	236
4	5	245

3. The aim of the experiment was to find out the effect of _____
 - A. Layers on egg product
 - B. Number of layers on egg production
 - C. Light duration on type of feed
 - D. Light duration on egg production

4. How many eggs were laid in the control treatment?
 - A. 200
 - B. 230
 - C. 26
 - D. 245

5. What conclusion can be drawn from this experiment?
 - A. Duration of light in chicken house increases production cost
 - B. Increasing duration of light enables chicken to eat for a long time
 - C. Light provides warmth to chickens at night
 - D. Increasing duration of light increases number of eggs laid

6. Which of the following fertilizers contain only one plant nutrient?
 - A. Di-Ammonium Phosphate
 - B. Urea
 - C. 23:21:0+4S
 - D. D-Compound

7. What preventive measure should be taken against anaemia in pigs?
 - A. Keeping pig's houses warm
 - B. Adding iron to pig's feed
 - C. Killing all the infected pigs
 - D. Vaccinating the pigs

Table 2 shows water holding capacity of for different soils. Use it to answer Questions 8 to 10.

Table 2	
Soil	Water holding capacity
1	high
2	very low
3	moderate
4	low

8. Which of the following soils has a good balance between air and water spaces?
 - A. Soil 1
 - B. Soil 2
 - C. Soil 3
 - D. Soil 4

9. Which of the soils could be suitable for rice production?

- A. Soil 1
- B. Soil 2
- C. Soil 3
- D. Soil 4

10. Which of the soils would require frequent irrigation?

- A. Soil 1
- B. Soil 2
- C. Soil 3
- D. Soil 4

11. What is the function of gizzard in the digestive system of a hen?

- A. For physical digestion of feed
- B. For chemical digestion of feed
- C. For permanent storage of feed
- D. For temporary storage of feed

12. Which of the following crops would grow best in shallow soils?

- A. Onions
- B. Cabbage
- C. Groundnuts
- D. Carrots

13. Which of the following are biological methods of conserving soil and water?

1. Construction of box ridges
 2. Application of manure
 3. Correct spacing of crops
 4. Construction of dams
- A. 1 and 2
 - B. 1 and 4
 - C. 2 and 3
 - D. 3 and 4

Table 3 shows types of feed given to ten Californian white rabbits at different stages of growth. Use it to answer Questions 14 and 15.

Table 3	
Stage of growth	Type of feed
Suckling	Commercial pellets
Breeding	Protein and Energy concentrates
Pregnant	Protein and energy concentrates
Dry Does	Madeya

14. The type of feed given to rabbits depends on _____

- A. Number of rabbits
- B. Breed of rabbits
- C. Availability of feed
- D. Stage of growth

15. Why is it not necessary to give dry does protein concentrates?

- A. The dry does produce their own protein
- B. The dry does are unproductive
- C. The dry does need energy concentrates only
- D. The protein concentrates are scarce

16. Which of the following is the correct order which can result in silting of rivers?

- A. Deforestation, deposition, run off
- B. Run off, deforestation, deposition
- C. Deforestation, run off, deposition
- D. Deposition, deforestation, run off

17. Which of the following is a risk for a farmer who grows groundnuts?

- A. Inadequate land
- B. High cost of production
- C. fluctuation of prices
- D. Inadequate labour

18. Why is crop rotation important in vegetable garden?

- A. Plant nutrients from all layers are used
- B. Reduces the risk of total failure of vegetables
- C. Protects vegetables from strong winds
- D. Helps a farmer to have a variety of vegetables

19. Oxyvit is an example of a variable input because _____

- A. It is an animal drug
- B. It changes with size of production
- C. It is commonly found
- D. It is expensive to acquire

20. Which of the following is an effect of overstocking on the environment?

- A. Scarcity of pastures
- B. Scarcity of arable land
- C. Selective grazing
- D. Frequent droughts

21. Which impr
A.
B.
C.
D.

22. Wh
ma
A.
B.
C.
I.

23. W
fu

24. V
char
vege

25

21. Which of the following ways can improve productivity in crops?
- Opening more farms
 - Planting crops on ridges
 - Growing improved varieties
 - Reducing plant spacing
22. Which of the following is a way of maintaining a granary?
- Cleaning the granary
 - Repairing broken parts
 - Controlling pests in the granary
 - Fixing rat guards on pots
23. Which of the following is a physical function of marketing?
- Selling
 - Storage
 - Financing
 - Grading
24. Which of the following are characteristics of a suitable site for a vegetable garden?
- Nearness to a source of manure
 - Nearness to an agricultural station
 - Nearness to a water supply
 - Nearness to a market
- 1 and 2
 - 1 and 3
 - 2 and 4
 - 3 and 4
25. Which of the following agricultural practices can lead to desertification?
- mixed farming
 - crop rotation
 - Overgrazing
 - shifting cultivation
- 1 and 2
 - 1 and 3
 - 2 and 4
 - 3 and 4
26. How do trees help in conserving soil?
- Roots of trees bind soil particles
 - Roots of trees absorb water from the soil
 - Trees reduce infiltration rate
 - Decomposed leaves improve soil structure
- 1 and 4
 - 1 and 3
 - 2 and 3
 - 2 and 4

27. What management activity is done to pigs which are in the third month of pregnancy?
- flushing
 - Selection
 - Weaning
 - Steaming up

Table 4 shows number of chickens demanded at market in four days. Use it to answer Questions 28 to 30.

Days	Mon	Wed	Thurs	Fri
#of chickens demanded	20	40	90	10

28. What was the average number of chickens sold on the market in the four days?
- 10
 - 40
 - 80
 - 160
29. In which day was a farmer likely to raise the price of the chickens if 80 chickens were supplied on each day?
- Monday
 - Wednesday
 - Thursday
 - Friday
30. Which of the following is the reason for the answer in Q.29?
- The demand is greater than the supply
 - The demand is lower than the supply
 - The demand is equal to the supply
 - The demand is higher than the price



SECTION B (36 marks)

Answer all questions in the spaces provided

31a. State any one way in which market news is important to a farmer (1mark).

31b. Explain one way in which farmers can minimise each of the following agricultural risks

31b(i) theft of crops (2marks)

31b(ii) infection of animals (2marks).

32a. Give any two varieties of groundnuts which have a runner type growth habit. (2marks)

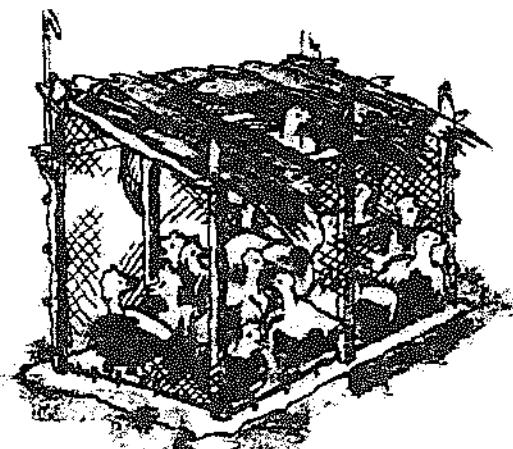
32b. Explain any one way in which planting groundnuts early results into high yield (2marks).

33a. Give any two improved breeds of pigs kept by farmers in Malawi (2marks)

33b. Why do pigs need a house that is warm in the cold season and cool in the hot season (2marks).

34a. State any two ways in which external parasites reduce broiler production (2marks).

34b. The **Figure** below is a diagram showing unsuitable conditions in broilers' house. Use it to answer the question that follows.



Explain any two ways of improving the house (4marks).

35. A farmer wants to grow rice under irrigation. Use this information to answer the questions that follow.

35a. State the most appropriate method of irrigation to be used by the farmer (1mark).

35b. Give any three limitations the farmer is likely to face (3marks).

36. Explain one way in which each of the following farming systems can help to sustain the growing population:

36a. Stall feeding (2marks)

36b. Mixed cropping (2marks)

36c. Agroforestry (2marks)

37a. Name three factors that should be considered when designing a field experiment on "maize Variety Trial" (3marks).

37b. Why is it important to carry out an agricultural experimentation on "Maize Variety Trial"? (2marks).

38. Mention any two ways in which soil resources can be depleted (2marks).

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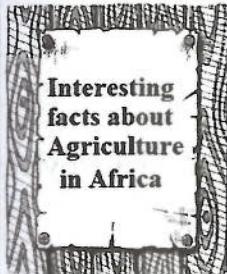
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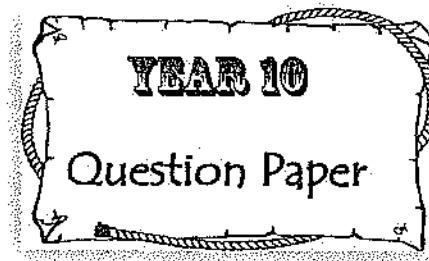
SECTION C (34 marks)

Instruction: Answer all the questions in the spaces provided

- 39a.** Give two ways in which families can ensure proper food distribution at household (2marks)
- 39b.** Explain one way in which each of the following can ensure food security: (i) avoid preparation of excessive amount of food (2marks) (ii) eating a variety of food (2marks) (iii) small family size (2marks).
- 40.** A farmer has 1 hectare of land on which he plans to grow maize. He has been advised to plant one seed per station at a spacing of 30cm between stations.
- 40a.** If ridges are 100cm apart, calculate the number of seeds that will be required (2marks).
- 40b.** If the farmer decides to plant two seeds per station at the same spacing between stations, explain how this will lead to low production of Maize (2marks).
- 40c.** Describe how each of the following methods of weeding is done: (i) light hoeing (2marks) (ii) banking.
- 41.** Table 5 shows details of information that a broiler farmer kept. Use it to answer the questions that follow.
- | Date | Details |
|----------|---|
| 02/05/08 | Bought 100 day old chicks at K100.00 each |
| 02/05/08 | Bought 10 bags of feeds at K3,000.00 each |
| 03/05/08 | Bought drugs at K1,000.00 |
| 30/05/08 | Paid K8,000.00 for labour |
| 31/05/08 | Bought charcoal at K500.00 |
| 02/06/08 | Paid K500.00 for water bills |
| 01/07/08 | Sold 95 broilers at K650.00 each |
| 01/07/08 | Sold manure at K1,500.00 |
| 01/07/08 | Family consumed 5 broilers valued at K650.00 each |
- Calculate:
- 41a.** The total cost of raising the broilers (3marks)
- 41b.** The total income from the broilers (3marks)
- 41c.** Profit (2marks)
- 42.** Describe an experiment to investigate the difference between a fertile and an infertile soil (10marks).



According to the U.N., foreign investment contracts in Africa have seized nearly 50 million acres of land. However, these acts were not always conducted diligently or openly. Although some sources suggest that there is ample land for the taking, local indigenous people are often overlooked as viable owners. Additionally, much of the land in Africa is unattainable. About 50 to 70 million acres in nine countries in sub-Saharan Africa are arable, while the rest is lost to poor infrastructure, conflict zones, or under forest cover and conservation.

**SECTION A****Multiple Choice (30 marks)**

Instruction: There are thirty questions in this section. Encircle the letter of your choice representing the right answer.

1. Which of the following varieties of groundnuts is a bunch type?

- A. Chalimbana
- B. Malimba
- C. Chitembana
- D. Manipintar

2. Which of the following diseases can attack both chickens and rabbits?

- A. Pneumonia
- B. Newcastle
- C. Gumboro
- D. Coccidiosis

3. Which of the following practices is a bad food habit?

- A. selling surplus food
- B. depending on one type of food
- C. eating a balanced diet
- D. preparing food according to the number of people

A farmer grew beans and maize at the same time on the same plot. Use this information to answer Questions 4 and 5.

4. What is the name of the farming system?

- A. shifting cultivation
- B. crop rotation
- C. mixed cropping
- D. mixed farming

5. The advantage of the farming system is that it _____.

- A. increases the total yield per unit area
- B. helps crops to benefit from manure from animals
- C. requires low level of technology
- D. helps to control weeds

6. Supply and demand in agricultural marketing are examples of _____

- A. marketing function
- B. marketing channels
- C. marketing forces
- D. market research

7. Which of the following is a limitation of organic fertilizers?

- A. They do not improve soil structure
- B. They encourage soil erosion
- C. They kill micro organisms in the soil
- D. They are required in large quantities

8. Bulkiness of agricultural products in marketing creates a problem on _____

- A. transport
- B. advertising
- C. pricing
- D. demand

Table 1 shows the results of an agricultural experiment on four varieties of tomatoes each grown on a 20 square metre plot. Use it to answer Questions 9 to 11.

Variety	Yield (kg/20m ²)
W	32
X	26
Y	40
Z	38

9. Which variety produced the highest yield?

- A. W
- B. X
- C. Y
- D. Z

10. What is the range of the yield?

- A. 26 - 38
- B. 26 - 40
- C. 32 - 38
- D. 32 - 40

11. The yield in kilogrammes per hectare for variety Z is _____

- A. 190
- B. 1,900
- C. 19,000
- D. 190,000

12. Which of the following layers of soil contains few plant roots?

- A. sub soil
- B. top soil
- C. gravel
- D. parental material

Figure 1 shows an experimental set-up in which a sample of soil was submerged in water. Use it to answer Questions 13 and 14.

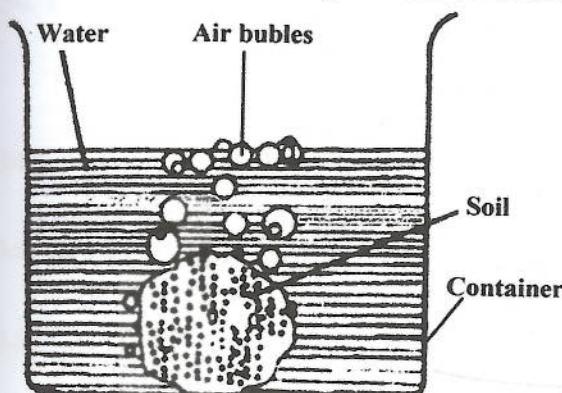


Figure 1

13. The aim of the experiment was to find out if soil contains _____

- A. water
- B. humus
- C. microorganisms
- D. air

14. How does the component of soil in 13 influence crop production?

- A. It helps to decompose organic matter
- B. it helps to dissolve plant nutrients
- C. It helps to check soil erosion
- D. it helps plant roots to respire

15. Light hoeing as a method of weeding is suitable when the soil is _____

- A. dry and the weather is sunny

- B. wet and the weather is sunny
- C. wet and the weather is cloudy
- D. dry and the weather is cloudy

16. What type of soil is suitable for the growing root vegetables?

- A. clay loam soil
- B. sandy loam soil
- C. silty clay soil
- D. sandy clay soil

A farmer observed the following symptoms of disease in groundnuts: Stunted growth, tiny leaves, and yellowing and curled leaves. Use this information to answer Questions 17 to 19.

17. What is the name of the disease that attacked the groundnuts?

- A. rosette
- B. late leaf spot
- C. head smut
- D. leaf blight

18. The disease caused by _____

- A. fungi
- B. virus
- C. bacteria
- D. nematodes

19. How can the disease be controlled?

- A. applying sulphur dust
- B. weeding regularly
- C. planting at the correct spacing
- D. harvesting at the right time

20. What name is given to the process of giving birth in pigs?

- A. gestation
- B. mating
- C. breeding
- D. farrowing

21. Which of the following is an advantage of flood irrigation?

- A. It is suitable for heavy soils
- B. It requires abundant water
- C. It improves soil fertility
- D. It requires sloping land

22. Which of the following is a breed of chickens?

- A. Leghorn
- B. Landrace
- C. Chinchilla
- D. Large white

22. Which of the following is a breed of chickens?
- Leghorn
 - Landrace
 - Chinchilla
 - Large white

Figure 2 shows a diagram of a livestock parasite. Use it to answer Questions 23 to 25.



Figure 2

23. What is the name of the parasite?
- mite
 - tick
 - tampan
 - round worm
24. The damage that the parasite causes is that it _____
- transmits Newcastle disease
 - sucks blood
 - blocks food passages
 - damages the liver
25. Which of the following methods can control the parasite?
- dipping
 - drenching
 - vaccination
 - cross breeding

26. Which of the following is an improved agricultural technology?
- agroforestry
 - shifting cultivation
 - monocropping
 - free range

27. Which of the following animals is monogastric?
- sheep
 - goat
 - cow
 - pig

28. Mulching seedlings on nursery beds is important for _____
- increasing soil temperature
 - improving air circulation
 - controlling soils pests
 - conserving soil water

29. Which of the following environmental problems can result from gully erosion?
- pollution of air
 - flooding of air
 - uncontrolled bush fires
 - outbreak of pests

30. A farmer borrowed money from the bank to buy farm inputs. What name is given to the additional sum of money that the farmer was required to pay back?
- deposit
 - loan
 - interest
 - cash

SECTION B (36 marks)

Answer all questions in the spaces provided

- 31a. Give any two breeds of rabbits (2marks)
- 31b. Name any two materials required for constructing a deep litter house for rabbits (2marks)
- 32a. Give any two examples of capital items on a farm (2marks)
- 32b. State the three steps followed when budgeting an agricultural enterprise (3 marks).

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33. Table 2 shows weekly measurements of plant height in centimeters for three maize varieties. Use it to answer questions that follow.

Variety	Wk1	Wk2	Wk3	Wk4
M	5	30	35	110
N	5	20	55	105
P	5	15	50	100

- 33a.** Calculate the difference in heights between varieties N and P in week 4 (2marks).
- 33b.** Which variety had the fastest growth rate by week 2? (1mark)
- 33c.** Give any two materials which could be used to take the measurements (2marks)
- 34.** Explain any one way in which each of the following practices on farm is carried out:

- 34a.** harvesting tomatoes (2marks)
- 34b.** quarantine in pest control (2marks)
- 34c.** calculating germination percentage (2marks).

- 35.** You are provided with the following information:
- Family W has 12 members
 - Family X has 3 members
 - Both families produce food enough for only 3 members every year

- 35a.** Which family is food insecure? (1mark)
- 35b.** State any three ways in which the family identified in "a" could be food secure (3marks)
- 36.** Table 3 shows the demand and supply of tomatoes in a certain market. Use it to answer questions that follow.

Table 3		
Price (Mk/kg)	Demand of tomatoes (kg)	Supply of tomatoes (kg)
6	65	45
9	60	50
12	55	55
18	50	60
24	45	66

- 36a.** Identify market price (1mark)
- 36b.** What was the demand of tomatoes when the price was K9.00 per kilogramme? (1mark)
- 36c.** Why did the supply of tomatoes increase when prices increased?
- 37a.** State any two commonly used sources of farm power in Malawi (2marks).
- 37b.** Figure 3 shows a farmer spraying chemicals on a farm. Use it to answer the question that follows.



Figure 3

Explain two ways of improving safety of the farmer when spraying chemicals (4marks).

- 38.** Give any two physical water conservation methods (2marks).

SECTION C (34 marks)

Instruction: Answer all the questions in the spaces provided

A farmer was advised to apply 200kg of Calcium Ammonium (CAN) fertilizer per hectare in a maize field. Use this information to answer questions that follow.

39a. Calculate the amount of the fertilizer to be applied in the farmer's field measures 5000 square meters. (3marks).

39b. What is the recommended time to apply this type of fertilizer to maize crops? (1mark)

39c. State the best method of applying this fertilizer to maize crops (1mark)

39d. Give any three advantages of the method of application stated in "c" (3marks)

40a. State any four ways in which use of farm machinery as an improved technology would increase crop production (4marks).

40b. Explain any two ways in which equal division of labour can help to increase food production (4 marks).

41a(i). Define "weaning" in pig production (1mark)

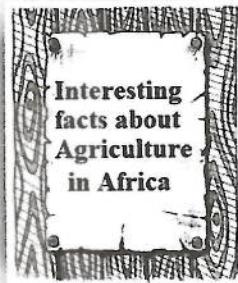
41a(ii). At what age should weaning in pigs be carried out? (1mark)

41b. Give one reason for providing each of the following conditions in a pig house: (i) concrete floor (2marks). (ii) well thatched roof (2marks). (iii) separate pens (2marks)

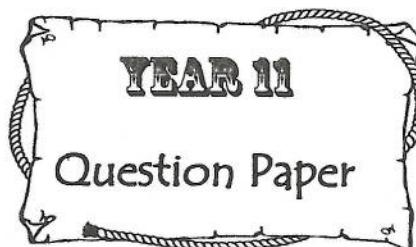
42a. State any three ways in which sunlight influences agricultural production (3marks)

42b. Give any two ways of conserving forests (2marks).

42c. Classify the following fertilizers into organic and inorganic fertilizers: farm yard manure, DAP, Urea, 23:21:0+4S and composite manure (5marks).



Farm Africa gives farmers access to important inputs. For example, fertilizers, drought-tolerant or disease-resistant seeds, and storage for their crops. Kenyan native, Lucy Marani, is a smallholder farmer who grew garden-variety peas to sell locally before finding financial security by diversifying her crops and switching to a more profitable seed that appeals to domestic and international markets. In 2018, Farm Africa fundraised raised \$522 thousand. These funds aided Marani and two thousand other farmers in achieving security and success.

**SECTION A**

Multiple Choice (30 marks)

Instruction: There are thirty questions in this section. Encircle the letter of your choice representing the right answer.

1. Which of the following animals is a breed of pigs
 - A. large white
 - B. shaver
 - C. hyline
 - D. chinchilla

2. Which of the following is a land preparation activity?
 - A. Weeding
 - B. Planting
 - C. Harvesting
 - D. Clearing

3. Which of the following is a facilitating function in marketing?
 - A. grading
 - B. transporting
 - C. buying
 - D. Packaging

4. Which of the following is an effect of overgrazing on the environment
 - A. soil erosion
 - B. soil pollution
 - C. shortage of land
 - D. storage of capital

A farmer planted 500 seeds of maize from which only 350 germinated. Use this information to answer Questions 5 and 6.

5. What was the germination percentage?
 - A. 75%
 - B. 70%
 - C. 42%
 - D. 30%

6. What should the farmer have done to obtain maximum plant population?
 - A. Supply the maize garden

- B. Change plant spacing
- C. Apply fertilizer
- D. thin the maize garden

7. Which of the following is a sign of maturity in maize?
 - A. Yellowing of leaves
 - B. lodging of maize
 - C. Drying of tassels
 - D. drooping of cobs

Table 1 shows results of a “fertilizer trial” on maize yield. Use it to answer Questions 8 and 9.

Table 1		
Plot	Fertilizer Rate (Kg/ha)	Yield (Kg/ha)
1	0	750
2	100	1500
3	200	2500
4	300	3000
5	400	2800

8. How much yield was obtained?
 - A. 750 kg
 - B. 1500 kg
 - C. 2500 kg
 - D. 2800 kg

9. What was the recommended rate of fertilizer?
 - A. 100 kg
 - B. 200 kg
 - C. 300 kg
 - D. 400 kg

10. Which of the following are types of surface irrigation system?

- A. Flood, furrow and sprinkler
- B. basin, furrow and flood
- C. furrow, sprinkler and basin
- D. flood, basin and sprinkler

Figure 1 is a diagram of broiler chicken attacked by a disease. Use it to answer Questions 11 to 13



Figure 1

11. What is the name of the disease?
 - A. New castle
 - B. Coccidiosis
 - C. Fowl pox
 - D. Fowl cholera

12. What organism causes the disease?
 - A. bacteria
 - B. virus
 - C. fungus
 - D. protozoa

13. Which of the following ways can help to control this disease?
 - A. dipping
 - B. drenching
 - C. deworming
 - D. vaccinating

14. Why is it necessary for a farmer to place groundnut plants upside down soon after digging?
 - A. for easy prevention of pests
 - B. for easy spraying of chemicals
 - C. for easy drying of the pods
 - D. for easy picking of the pods

15. A condition where everyone has enough food to eat for the whole year is known as
 - A. food distribution
 - B. food storage
 - C. food supply
 - D. food security

16. Which of the following is a maize storage structure?
 - A. barn
 - B. shed
 - C. pit silo
 - D. granary

17. Which of the following is a risk in agricultural marketing?
 - A. shortage of land
 - B. changes in advertisement
 - C. shortage of labour
 - D. changes in prices

18. Why do bunch type varieties of groundnuts require less space between planting stations?
 - A. They produce more yield per hectare
 - B. Their stems grow upwards
 - C. They have a high germination percentage
 - D. They require less sunlight

A farmer observed a black substance on maize tassels. Use this information to answer Questions 19 to 21.

19. What is the name of the disease that attacked the maize?
 - A. rust
 - B. cob rot
 - C. heads mut
 - D. maize streak

20. This disease is caused by
 - A. bacteria
 - B. virus
 - C. protozoa
 - D. fungus

21. How can this disease be controlled?
 - A. by uprooting and burning the infected maize plants
 - B. by spraying maize plants with actellic dust
 - C. by harvesting maize early
 - D. by using correct plant spacing

22. Which of the following is an animal feed?
 - A. piperazine
 - B. coccidiostat
 - C. gamatos
 - D. maize bran

23. Provision of greed feed stuffs to hens will enable them to lay
- eggs with hard shells
 - large eggs
 - eggs with deep yellow yolks
 - disease free eggs

24. What is the function of grit in the digestive system of a chicken?
- soften the feed
 - digest the feed
 - absorb digested feed
 - absorbs water from the feed

Figure 2 is a bar graph showing egg production in one year for 100 layers. Use it to answer Questions 25 to 27.

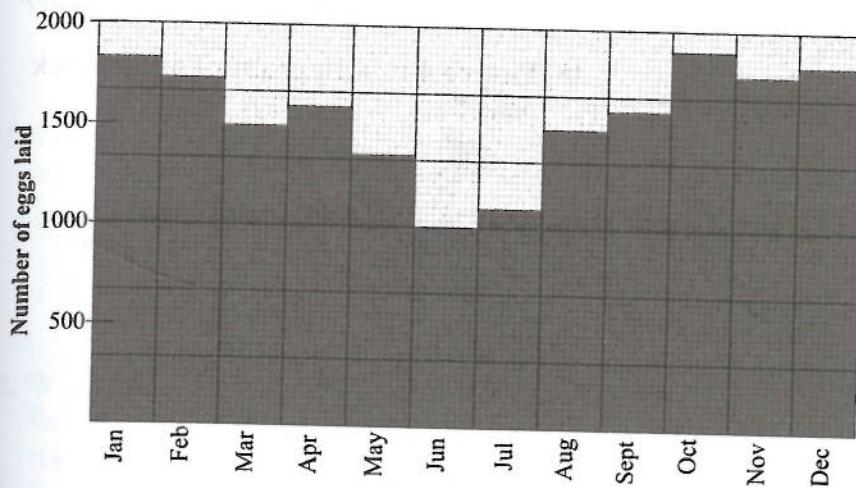


Figure 2

27. What was the likely cause of the drop in the number of eggs laid in the month of June?
- cold weather
 - drought
 - inadequate cocks
 - Limited space

28. Which of the following natural resources helps to anchor plants?
- vegetation
 - soil
 - water
 - air

25. How many eggs were laid in march?

- 15000
- 1500
- 150
- 15

26. How much money did a farmer get if all the eggs produced in June were sold at K15.00 each?

- K150.00
- K1500.00
- K15,000.00
- K150,000.00

29. Which of the following is a forest resource?

- timber
- land
- minerals
- water

30. Which of the following is an improved farming technology?

- use of irrigation
- use of hybrid varieties
- use of organic fertilizers
- use of local breeds

SECTION B (36 marks)

Answer all questions in the spaces provided

- 31a. Give any two reasons why it is not advisable to spray chemicals against the wind (2marks)

- 31b. Figure 3 is a diagram of a boy and a girl irrigating vegetables

- 31b(i). Name the system of irrigation.

- 31b(ii). State two advantages and any two disadvantages of using this system of irrigation (2marks).



Figure 3

- 32a.** Define the term "mixed farming"
- 32b.** Give any two ways in which mixed farming can help to ensure food security (2marks).
- 33a.** List any two factors to consider when selecting a site for vegetable production (2marks)
- 33b.** Give any two ways of caring for seedlings (2marks).
- 34.** State one way in which each of the following ways of rearing piglets is important:
- 34(a).** matching piglets to teats (1mark)
- 34(b).** feeding colostrum milk to piglets (1mark)
- 34(c).** clipping the teeth of piglets (1mark).
- 35a.** Give any one physical weathering agent (1marks)
- 35b.** State any three ways of conserving forests (3marks)
- 36a.** State any two basic concepts of farm business (2marks).

- 36b.** Give any two sources of finance for a poultry business (2marks)
- 37a.** List the two market forces which can determine the price of bananas in the market (2marks)
- 37b.** Explain one way in which each of the market forces listed in 37(a) affects the price of bananas (4marks).

- 38.** **Figure 4** is a diagram of a live stock parasite

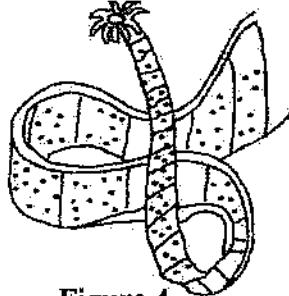


Figure 4

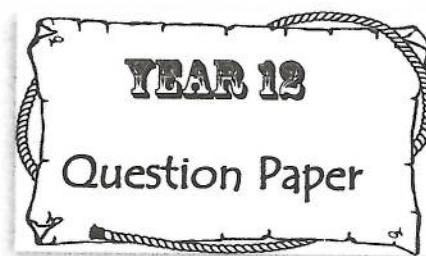
- 38a.** Name the parasite (1mark)
- 38b.** State any three farm animals that can be attacked by the parasite (3marks)
- 38c.** State one way of controlling the parasite (1mark).

SECTION C (34 marks)

Instruction: Answer all the questions in the spaces provided

- 39.** Classify the following pest control practices into cultural and chemical methods:
- applying actellic dust
 - early planting
 - use of pest free seed
 - fumigating seed in storage
 - burning of crop remains
 - correct spacing of crops
 - spraying some crops
 - spraying some crops with carbaryl
 - practising crop rotation.
- (8marks).

- 40.** You are provided with the following information:
- maize varieties – P, Q and R
 - number of plots – 3
 - number of blocks – 2
- Show how the experiment will be laid out in the field (8marks).
- 41.** Explain any four effects of population increase on natural resources (8marks).
- 42.** Describe an experiment to show the presence of living organisms in the soil. In your description, include procedure, expected results and conclusion (10marks).

**SECTION A**

Multiple Choice (30 marks)

Instruction: There are thirty questions in this section. Encircle the letter of your choice representing the right answer.

1. Which of the following is a minor factor of production?
 - A. capital
 - B. land
 - C. climate
 - D. labour

2. What name is given to the money that a farmer obtains from a bank in order to start business?
 - A. income
 - B. loan
 - C. interest
 - D. capital

3. The available food that is required to meet people's needs in a country is called food.
 - A. supply
 - B. production
 - C. distribution
 - D. consumption

4. The method of applying fertilizer to maize plants by making holes on both sides of the plant is
 - A. broadcasting
 - B. foliar
 - C. banding
 - D. dollop

5. Which of the following factors is not necessary for seed germination?
 - A. air
 - B. warmth
 - C. soil
 - D. water

6. Which of the following is a ruminant animal?
 - A. pig
 - B. cattle
 - C. rabbit
 - D. chicken

7. Which of the following farm structures is used in animal production?
 - A. crush
 - B. granary
 - C. shed
 - D. barn

8. Why should vegetables be stored in a cool place?
 - A. to sell them quickly
 - B. to prevent them from thieves
 - C. to make them soft
 - D. to prevent them from weathering

9. Which of the following is an intensive farming system in animal production?
 - A. stall feeding
 - B. mixed cropping
 - C. free range
 - D. agroforestry

The table below shows results of an experiment on varieties of maize expressed in kg/ha. Use it to answer questions 10 and 11

Variety	Yield (kg/ha)
P	
Q	
R	
S	

10. The aim of experiment was to find out the variety that was
 - A. fast maturing
 - B. disease resistant
 - C. easy to harvest
 - D. most productive

11. Which variety should farmers be advised to grow?

A. P
B. Q
C. R
D. S

A sample of garden soil was dried until it had constant weight. The results are shown below:

- weight of soil before drying = 4g
- weight of soil after drying = 3g

Use this information to answer Questions 12 and 13.

12. The aim of the experiment was to find out the amount of

A. humus in the soil
B. water in the soil
C. air in the soil
D. living organisms in the soil

13. What was the percentage of the soil constituent found in the experiment?

A. 25
B. 33
C. 40
D. 75

14. Calcium is important to layers because it helps in formation of

A. large chicks
B. large eggs
C. egg shells
D. egg yolk

15. Which of the following is a common parasite of rabbits?

A. kidney worm
B. tick
C. mite
D. coccidian worm

16. Which of the following is a safety measure when spraying chemicals in vegetables?

A. Wearing a jacket
B. Wearing a mask
C. Spraying on a windy day
D. Spraying while harvesting

17. What method of weeding is recommended in groundnuts that have

already flowered?

A. Uprooting
B. Slashing
C. Banking
D. Hoeing

18. Which of the following pest can damage maize in the garden and storage?

A. Aphid
B. locust
C. Mouse
D. Grasshopper

19. What name is given to an estimate of income and expenditure that a farmer expects from a business?

A. Financing
B. Profit
C. Budget
D. Product

20. Agricultural produce can be made available throughout the year by

A. lowering the price of farm produce
B. Storing the farm produce
C. Advertising the farm produce
D. Improving roads from farms

21. Which of the following varieties of groundnuts is resistant to rosette disease?

A. RGI
B. Malimba
C. Manipintar
D. Chalimbana

22. Which of the following fertilizers is applied to maize as a basal dressing?

A. Sulphate of Ammonia
B. Calcium Ammonium Nitrate
C. 23:21:0+4S
D. Urea

23. Which of the following types of irrigation systems is most suitable for sloping lands?

A. Furrow
B. Basin
C. Sprinkler
D. Flood

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A pig showed the following symptoms of a disease: Blood in faeces, high temperature and difficult breathing. Use this information to answer Questions 24 and 26.

24. What is the name of the disease which attacked the pig?
- Hog cholera
 - African Swine Fever
 - Mastitis
 - Anaemia
25. Which of the following organisms caused the disease?
- bacteria
 - fungi
 - virus
 - protozoa
26. The disease can be controlled by
- treating the pig udder with antiseptic
 - Injecting the pig with antibiotics
 - adding iron to pig feed
 - killing and burning the diseased pig
27. What name is given to the practice of giving extra feed to pigs in the last six weeks of pregnancy?
- fattening
 - drenching
 - flushing
 - steaming up
28. Which of the following is an effect of deforestation in agriculture?
- increase labour costs
 - increase soil erosion
 - increase price of firewood
 - increase land for farming
29. Which of the following ways can help to improve animal production?
- use of correct land husbandry practices
 - applying a lot of inorganic fertilizer
 - Use of improved breeds
 - applying herbicides correctly
30. Which of the following is an example of a live fence?
- brick fence
 - wire fence
 - wooden fence
 - hedge fence

SECTION B (36 marks)

Answer all questions in the spaces provided

- 31a. Define "irrigation" (1mark)
- 31b. Give any three advantages of drip irrigation (3marks).
32. The figure below is a diagram of a pest on maize crop. Use it to answer questions that follow.
- 
- 32a. Name the maize pest (1mark)
- 32b. State any two ways in which the pest can damage the maize crop (2marks).
- 32c. Give any one chemical that can be used to control the pest (1mark)
33. A farmer kept the following information for a maize enterprise. Use it to answer questions that follow.
- Cost of fertilizer = K10,000.00
 - Cost of seed = K1,500.00
 - Cost of labour = K15,000.00
 - Price of Maize = K50.00 per kilogramme
 - Yield of maize = 3,000 kilogrammes

- 33a.** Calculate total cost for growing the maize (2marks).
- 33b.** Calculate income obtained (2marks)
- 33c.** State any two uses of farm records (2marks)
- 34a.** List any three external parasites of chickens (3marks).
- 34b.** State any three qualities of a good broiler house (3marks)
- 35a.** Mention any two exotic breeds of pigs (2marks).
- 35b.** Give any two reasons why castration is important in pig production (2marks).

- 36a.** Give examples of exchange functions of marketing (2marks).
- 36b.** State any three problems in agricultural marketing (3marks)
- 37a.** Write down any three food habits that can ensure food security in a family (3marks)
- 37b.** Explain any one way in which decision making by both men and women can improve agricultural production (2marks).
- 38.** State any two characteristics of top soil which are suitable for crop production (2marks).

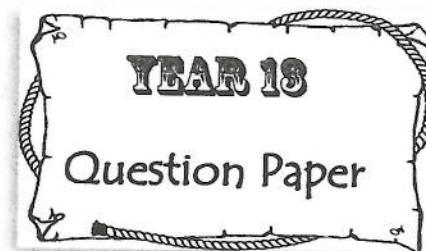
SECTION C (34 marks)

Instruction: Answer all the questions in the spaces provided

- 39.** You are provided with the following treatments on rate of fertilizer application: 0kg, 50kg, 100kg and 150kg. Allocate in the diagram below how the treatments will appear in the experimental design.

	BLOCK I	BLOCK II	BLOCK III	BLOCK IV
Plot 1				
Plot 2				
Plot 3				
Plot 4				

- 40.** Describe any four land preparation practices (8marks)
- 41.** Explain any four ways in which mixed cropping can support the growing population (8marks).
- 42.** Classify the following soil and water conservation methods into physical and biological methods:
 - making ridges across the slope
 - applying manure
 - practicing crop rotation
 - making terraces
 - planting trees
 - avoiding overgrazing
 - constructing check dams
 - planting grass
 - constructing contour bands
 - avoiding bush fires
 (10marks)

**SECTION A****Multiple Choice (30 marks)**

Instruction: There are thirty questions in this section. Encircle the letter of your choice representing the right answer.

1. Which of the following vegetables are exotic in Malawi?
 - A. "luni" and tomato
 - B. "denje" and rape
 - C. rape and tomato
 - D. "luni" and "denje"

2. What name is given to the allocation of treatments by chance in an experiment?
 - A. Replication
 - B. randomization
 - C. observation
 - D. evaluation

3. Which of the following practices can be done in both crop and livestock production?
 - A. drenching
 - B. breeding
 - C. Supplying
 - D. Thinning

4. Mulching helps to conserve moisture in the soil by
 - A. regulating movement of air
 - B. binding soil particles together
 - C. controlling weed growth
 - D. reducing evaporation

5. What was the income when the price of tomatoes was K20 per kilogramme?
 - A. K13,000.00
 - B. K12,000.00
 - C. K650.00
 - D. K600.00

6. What happens to the supply of tomatoes when price increases?
 - A. remains constant
 - B. same as demand
 - C. increases
 - D. decreases

7. Farmers are advised to stick to their budgets on a farm in order to
 - A. avoid over spending
 - B. identify problems
 - C. apply for loans
 - D. buy inputs

8. What name is given to the washing down of nutrients in the soil?
 - A. erosion
 - B. leaching
 - C. run off
 - D. infiltration

Table 1 shows demand and supply of tomatoes at a certain market in relation to price. Use it to answer Questions 5 and 7

Price (MK/kg)	Demand (kg)	Supply (kg)
10	750	450
15	700	550
20	650	600
25	600	750

Figure 1 is a diagram showing a student carrying out husbandry practice in maize. Use it to answer Questions 10 and 11.



Figure 1

- 10.** What is the name of the husbandry practice?
 A. harvesting
 B. weeding
 C. dusting
 D. sowing
- 11.** Why is this practice important in maize production?
 A. kills weeds
 B. supplies water
 C. controls diseases
 D. kills pests
- 12.** Which of the following materials are included when constructing a granary?
 A. poles and rat guards
 B. bricks and grass
 C. bamboos and cement
 D. mud and ropes

Table 2 shows estimated maize production and requirement for a family per year. Use it to answer **Questions 13 and 14**.

Table 2		
Farming year	Production (kg)	Requirement (kg)
1980/81	1,000	800
1981/82	1,100	790
1982/83	750	730
1983/84	900	930

- 13.** In which farming year did the family experience food security?
 A. 1980/81
 B. 1981/82
 C. 1982/83
 D. 1983/84
- 14.** Calculate total food production in the farming years when the family was food secure?
 A. 2320 kg
 B. 3850 kg
 C. 3250 kg
 D. 3750 kg
- 15.** Which of the following is not a challenge to smallholder farmers?
 A. small families
 B. small farms
 C. limited access to credit facilities
 D. limited access to storage facilities

- 16.** Which of the following methods of weeding is recommended in groundnuts when they are about to flower?
 A. slashing
 B. uprooting
 C. banking
 D. hoeing
- 17.** How many seeds germinated if students planted 200 seeds of groundnuts from which only 20% germinated?
 A. 20
 B. 40
 C. 200
 D. 220
- 18.** In an experiment, it was concluded that groundnut seeds planted at 15 cm apart produced more yield than those planted at 5cm apart. The aim of the experiment was to find out the effect of
 A. germination on yield
 B. planting time on yield
 C. planting depth on yield
 D. plant spacing on yield
- 19.** Which of the following breeds of chickens is a broiler?
 A. starbro
 B. hyline
 C. shaver
 D. White leghorn
- 20.** Which of the following methods can control internal parasites in live stock?
 A. dipping
 B. disinfecting
 C. drenching
 D. vaccination
- 21.** Which of the following is a physical marketing function?
 A. financing
 B. selling
 C. Storage
 D. grading
- 22.** A farmer cultivated a small piece of land for five years and abandoned it. He later returned to the same land after ten years. The farming system that the farmer followed is

- A. bush fallowing
 B. mixed farming
 C. crop rotation
 D. shifting cultivation
- 23.** Why is food distribution important at national level?
 A. makes food available
 B. raises prices of food
 C. enables people to eat a lot of food
 D. enables people to have a balanced diet
- 24.** Which of the signs would show that ground nuts are ready for harvesting?
 A. Yellowing of leaves
 B. brown spots on leaves
 C. drying of leaves
 D. brown spots inside pods
- 25.** What name is given to the removal of extra seedlings from the planting station?
 A. weeding
 B. supplying
 C. thinning
 D. transplanting
- 26.** Creep feeds is recommended for
 A. chicks
 B. piglets
 C. layers
 D. sows
- A farmer observed difficult breathing and nasal discharge in rabbits. Use this information to answer Questions 27 and 28.
- 27.** The rabbits were suffering from
 A. mastitis
 B. anaemia
 C. pneumonia
 D. coccidiosis
- 28.** Which of the following microorganisms could have caused the disease?
 A. bacteria and virus
 B. virus and protozoa
 C. protozoa and fungi
 D. fungi and bacteria
- 29.** closed season controls pests by
 A. restricting movement of the pests
 B. depriving the pests of air
 C. exposing the pests to heat
 D. breaking the life cycle of the pests
- 30.** At what stage of growth of maize is water shortage critical?
 A. germination
 B. maturity
 C. flowering
 D. vegetative

SECTION B (36 marks)
 Answer all questions in the spaces provided

31a. Give any two ways of caring for transplants (2marks)

31b. Name any two examples of vegetables which can be attacked by aphids (2mrks)

32a. List any three qualities of a good house of layers (3marks)

32b. State any two disadvantages of battery cage system of keeping layers (2marks)

32c. Give any two reasons why litter should be put on the floor of a deep litter house (2marks)

33a. **Figure 2** is a diagram showing an irrigation system. Use it to answer the questions that follow.

33a(i). Name the irrigation system (1mark)

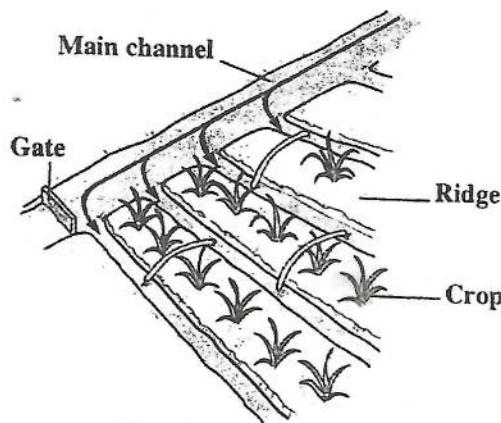


Figure 2

33a(ii). Give any three advantages of the irrigation system (3marks).

33b. List any two examples of natural resources that influence agricultural production (2marks).

34a. State one function of each of the following parts in the digestive system of poultry:

34a(i). crop (1mark)

34a(ii). beak (1mark).

34b. Give any two differences between the digestive systems of ruminants and non ruminants (2marks).

35. A farmer borrowed K20,000 from the bank to be repaid at the end of the year. He was charged 10% simple interest per year. Use this information to answer the questions that follow.

35a. Calculate the interest

35b. What was the total amount of money to be repaid to the bank at the end of the year? (2marks)

36a. State the importance of maintaining the balance between population growth and food supply (1mark).

36b. Give any three food habits that can contribute to food insecurity (3marks)

37a. Write down any two disadvantages of mechanical power (2marks).

37b. State any three ways of maintaining a granary

38. Given any two ways in which agricultural marketing is important (2marks).

SECTION C (34 marks)

Instruction: Answer all the questions in the spaces provided

39. Give any four reasons why agricultural experimentation is important in crop production (8marks)

40. Describe any four effects of overstocking on the environment (8marks).

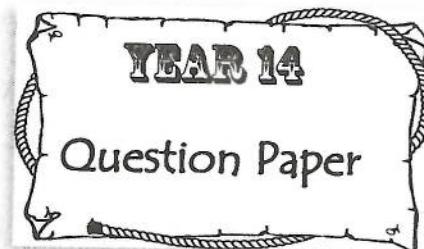
41. Explain any four ways in which weed control in maize is important (8marks)

42. Group the following into physical, biological and chemical weathering agents: wind, plant roots, carbonation, animal hoofs, freezing water, oxidation, running water, temperature changes, soil organisms and hydration (10 marks).

PHYSICAL	BIOLOGICAL	CHEMICAL

Interesting facts about Agriculture

More than 6000 varieties of apple are grown around the world
Yes, that's true. The biggest producer of apple varieties is China, followed by the United States, Turkey, Russia, Iran, and India. Pink lady, Fuji, Empire, Golden Delicious, Gala, Honey crisp are a few varieties.

**SECTION A**

Multiple Choice (30 marks)

Instruction: There are thirty questions in this section. Encircle the letter of your choice representing the right answer.

1. Supplying in maize should be done
 - A. during planting
 - B. before germination
 - C. soon after germination
 - D. before planting

2. Cannibalism in a deep litter house takes place when there is inadequate
 - A. light
 - B. feed
 - C. drugs
 - D. litter

3. Which of the following is an example of an overhead irrigation system?
 - A. furrow
 - B. flood
 - C. drip
 - D. sprinkler

4. Which of the following inputs can be included in crop production?
 - A. actellic
 - B. amprol
 - C. grower's mash
 - D. troughs

5. What is the function of the omasum in digestive system of ruminant animal?
 - A. digests proteins
 - B. absorbs water
 - C. separates feed
 - D. digests cellulose

6. Which of the following is an extensive farming system?
 - A. shifting cultivation
 - B. crop rotation
 - C. agroforestry
 - D. mixed cropping

7. Which of the following pests transmit rosette disease in groundnuts?
 - A. termites
 - B. grasshoppers
 - C. aphids
 - D. beetles

8. Which of the following marketing functions can allow farmers to sell their produce when demand is high?
 - A. distribution
 - B. grading
 - C. Transportation
 - D. Storage

The table below shows demand and supply of bananas in relation to price. Use it to answer Questions 9 and 10.

Price (MK/kg)	Demand (kg)	Supply (kg)
5	620	100
10	510	180
20	290	410
25	135	540

9. What is the relationship between price and demand for bananas?
 - A. demand decreases as price increases
 - B. demand increases as price increases
 - C. demand does not change as price increases
 - D. demand is equal to price

10. What is the income when the price of bananas is K20?
 - A. K700
 - B. K720
 - C. K5800
 - D. K8200

11. Which of the following animals is a rabbit?
- sow
 - doe
 - boar
 - cock
12. Which of the following is a biological weathering agent?
- water
 - wind
 - temperature
 - plant roots
13. Which of the following breeds of pigs is a local breed?
- Spotted black
 - Berkshire
 - Hampshire
 - Saddle back
14. Which of the following factors can increase the supply of farm produce to market?
- Low population
 - low prices
 - high prices
 - cost of production
15. An "equilibrium price" is the
- selling price
 - highest price
 - lowest price
 - market price
16. How many maize seeds should a farmer plant per station if the spacing between planting stations is 30cm?
- 1
 - 2
 - 3
 - 4

Figure 1 is a diagram showing a farm structure. Use it to answer Questions 17 and 18.

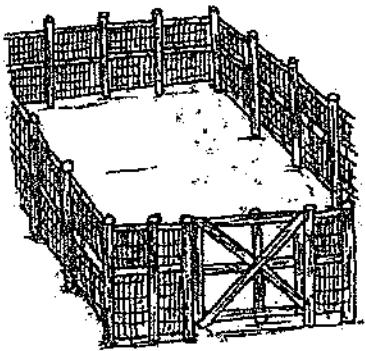


Figure 1

17. What is the name of the farm structure?
- fence
 - cattle crush
 - dip tank
 - granary
18. Which of the following is the importance of the farm structure?
- acts as a crop storage facility
 - keeps away farm animals
 - keeps farm animals at night
 - acts as a crop processing facility
19. Top soil is important for crop production because it contains:
- humus
 - gravel
 - plant roots
 - big air spaces
- Form two students observed that leaves of vegetables were drying even when water supply was adequate. Use this information to answer Questions 20 to 22.
20. Which of the following diseases attacked the vegetables?
- black rot
 - leaf spot
 - damping off
 - bacteria wilt
21. The microorganism that causes the disease is
- virus
 - fungus
 - protozoa
 - bacteria
22. Which of the following ways can control the disease?
- reduce watering
 - spray Daconil
 - correct spacing
 - remove infected plants
23. Which of the following activities on a farm can deplete natural resources?
- establishing woodlots
 - constructing box ridges
 - cultivating on steep slopes
 - making ridges across the slope

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- 24.** Which of the following parasites can distract an animal from eating due to irritation?
 A. liver fluke
 B. tape worm
 C. biting louse
 D. round worm
- 25.** Which of the following is a basic business management concept?
 A. record keeping
 B. selling
 C. marketing
 D. grading
- 26.** The major limitation of human power is that it is
 A. scarce
 B. slow
 C. inefficient
 D. expensive
- 27.** Which of the following factors are necessary for seed germination?
 A. soil, moisture and light
 B. air, moisture and warmth
 C. warmth, air and light
 D. soil, warmth and air
- 28.** How can land degradation be controlled?
 A. cultivating along the river banks
 B. applying inorganic fertilizers
 C. making ridges across the slope
 D. practicing irrigation farming
- A farmer keeps pigs in a khola. He provides feed and water to the animals every day. Use this information to answer Questions 29 and 30.
- 29.** The name of the system of raising pigs is
 A. rotational grazing
 B. stall feeding
 C. continuous grazing
 D. free range
- 30.** What is the importance of this system of raising pigs to the growing population?
 A. reduce labour
 B. reduce dependency on one type of food
 C. helps to control population growth
 D. increases meat production

SECTION B (36 marks)

Answer all questions in the spaces provided

- 31.** Give any three ways in which soil microorganisms are important in crop production (3marks)
- 32a(i).** Define the term "conservation" of natural resources (1mark)
- 32a(ii).** State any three ways in which application of manure can help to conserve soil and water (3marks).
- 32b.** If a farmer always applies manure in the field, what method of conserving soil is practiced on this farm? (1mark).
- 33a.** List any two constituents of soil (2marks).
- 33b.** State any two harmful effects of wind in livestock production (2marks)
- 34a.** Give any four ways in which agricultural marketing is important (4marks).
- 34b.** Write down three physical functions that are carried out between a farmer and the consumer (3marks)
- 35a.** State one way in which each of the following effects of deforestation can affect agricultural production: (i) silting of dams (1mark). (ii) lowering of water table (1mark)
- 35b.** Give any three risk that can affect agricultural production (3marks).

36. Figure 2 is a diagram showing a crop pest. Use it to answer the questions that follow.

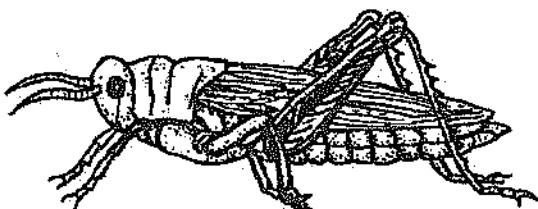


Figure 2

- 36a. Identify the pest (1mark)
- 36b. What damage does the pest cause to crops (1mark)

- 36c. Give one chemical that can be used to control the pest (1mark)

- 37a. State any three disadvantages of free range system of keeping chickens (3marks)

- 37b. Give any three examples of good animal husbandry practices (3marks).

38. Give any three ways of improving food security at household level (3marks)

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SECTION C (34 marks)

Instruction: Answer all the questions in the spaces provided

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39. Give one example in each case of what can be changed in the following experiments

Experiment	What can be changed
Watering	
Time of planting	
Weeding	
Maize variety	

(8marks)

40. Give any four reasons why it is important to increase agricultural production for the growing population. (8marks)

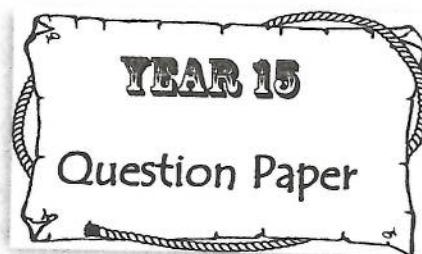
41. Give any four reasons for preparing land soon after harvesting crops (8marks).

42. Group the following vegetables into leaf, root, fruit and legumes:

Black jack,
bean,
local mustard,
pepper,
turnips,
eggplant,
onion,
carrot,
tomato and
pea.

Leaf	Root	Fruit	Legumes

(10marks)

**SECTION A**

Multiple Choice (30 marks)

Instruction: There are thirty questions in this section. Encircle the letter of your choice representing the right answer.

1. Which of the following animals is a rabbit?
 - A. bull
 - B. ewe
 - C. buck
 - D. doe

 2. Why are box ridges constructed in a garden?
 - A. to drain water away from the furrows
 - B. To prevent water from entering the garden
 - C. to hold water in furrows
 - D. to carry water away from the garden

 3. The variety of groundnuts which has a bunch type growth habit is
 - A. Malimba
 - B. Chalimbana
 - C. Manipintar
 - D. Chitembana

 4. Which of the following ways can control external parasites in animals?
 - A. drenching
 - B. spraying
 - C. vaccinating
 - D. deworming

 5. Herbicides are used to control
 - A. microorganisms
 - B. predators
 - C. weeds
 - D. pests

 6. What name is given to the practice of conducting an experiment in several places?
 - A. treatment
 - B. replication
 - C. designing
 - D. randomization

 7. Which of the following activities is an exchange function?
 - A. storage
 - B. advertising
 - C. packaging
 - D. buying

 8. Which of the following is a risk on farm?
 - A. land
 - B. capital
 - C. drought
 - D. labour

 9. At what age should piglets be weaned?
 - A. 2 weeks old
 - B. 2 months old
 - C. 6 weeks old
 - D. 6 months old

 10. Which of the following chemicals is used to control caterpillars in vegetables?
 - A. carbaryl
 - B. dimethoate
 - C. daconil
 - D. sulphur dust
- A farmer observed the following signs of a disease in chicks: bloody diarrhoea and ruffled feathers. Use this information to answer Questions 11 to 13

- 11.** What is the name of the disease that attacked the chicks?
 A. Fowl pox
 B. New castle
 C. Gumboro
 D. Coccidiosis
- 12.** Which of the following organisms caused the disease?
 A. virus
 B. protozoa
 C. fungi
 D. bacteria
- 13.** The disease can be controlled by giving the chicks
 A. amprol
 B. antibiotics
 C. piperazine
 D. iodine
- 14.** Which of the following inputs can a farmer buy for vegetable production?
 A. vitamins
 B. antibiotics
 C. daconil
 D. gamatox
- 15.** Which of the following chickens is a broiler breed?
 A. White leghorn
 B. Starbro
 C. Shaver
 D. Hyline
- 16.** Consumers need current market information in order to
 A. identify the cheapest market and buy from there
 B. make high profits
 C. select the best market in which to sell
 D. choose crops wisely
- 17.** Why is ploughing important in land preparation?
 A. to plant early
 B. to reduce labour
 C. to grow more crops
 D. to loosen the soil
- 18.** Money used to start business is called
 A. capital
 B. loan
- 19.** C. income
 D. profit
- 20.** Which of the following diseases can attack transplants?
 A. rosette
 B. headsmut
 C. common smut
 D. damping off
- 21.** Which of the following is part of a report of an agricultural experiment?
 A. treatment
 B. introduction
 C. replication
 D. randomization
- 22.** Which of the following sources of power can do a thorough job?
 A. Human
 B. animal
 C. water
 D. mechanical
- 23.** Army worms damage maize crops by eating
 A. roots
 B. tassels
 C. cobs
 D. leaves
- 24.** Which of the following is an effect of rapid population growth on agriculture?
 A. inadequate land for farming
 B. decrease in price of farm inputs
 C. improve living standards
 D. high cost of labour
- 25.** Which of the following is a symptom of black rot disease in vegetables?
 A. brown spots on leaves
 B. rotting of fruits
 C. tiny stems
 D. water soaked leaves
- 26.** The washing down of nutrients in the soil profile is called
 A. decomposition
 B. leaching
 C. infiltration
 D. erosion

- 26.** Which of the following is an effect of overgrazing?
 A. high infiltration and low runoff
 B. high infiltration and high runoff
 C. low infiltration and low runoff
 D. low infiltration and high runoff
- 27.** What is the name of the feed given to pigs that are ready for market?
 A. creep feed
 B. grower's mash
 C. fattener meal
 D. weaner meal
- 28.** Which of the following management practices is done in poultry?
 A. thinning
 B. dipping
 C. farrowing
 D. debeaking
- 29.** Which of the following crops is a legume?
 A. turnips
 B. pepper
 C. peas
 D. lettuce
- 30.** Sunlight influences poultry production in that it increases production of
 A. manure
 B. eggs
 C. feed
 D. feathers

SECTION B (36 marks)

Answer all questions in the spaces provided

- 31a.** State any two factors to consider when selecting maize varieties for planting (2marks).
- 31b.** Why are farmers encouraged to carry out germination tests before planting maize? (2marks).
- 32a.** List any three examples of "ruminant" animals (3marks).
- 32b.** Name the four stomachs of a ruminant animal (4marks)
- 33a.** Write down two ways in which vegetation influences agricultural production (2marks).
- 33b.** Explain any one harmful effect of using chemicals in crop production (2marks).
- 34a.** What happens when vegetable seeds are sown (i) too deeply? (ii) too thickly? (iii) unevenly? (3marks).
- 34b.** Give one reason for carrying out each of the following practices in a garden: (i) clearing the land (1mark) (ii) mulching (1mark).
- 35a.** Why is a dip tank important to animal production? (1mark)
- 35b.** Write down any three safety measures a farmer should observe when using the dip tank (3marks).
- 36a.** State any two signs of coccidiosis disease in rabbits (2marks)
- 36b.** Give any two ways of controlling coccidiosis diseases in rabbits (2marks).
- 37.** A farmer grows different types of crops by changing them from one plot to the other following an order each season. Use this information to answer questions that follow.
- 37a.** Name the farming system that the farmer practices (1mark)
- 37b.** Explain any two ways in which the farming system would help the farmer to have enough food (4marks).
- 38.** State any three ways in which agricultural experimentation is important (3marks).

SECTION C (34 marks)

Instruction: Answer all the questions in the spaces provided

39. Explain any four effects of overstocking on a farm (8marks).
40. Give any four ways in which labour affects agricultural production (8marks).
41. Describe an experiment to show that soil contains air. In your description, include materials used, procedure, observation and conclusion.
42. The table below shows demand and supply of Chinese cabbage at a certain market. Use it to answer questions that follow.
- | Price (Mk/bunch) | # of bunches demanded | # of bunches supplied |
|------------------|-----------------------|-----------------------|
| 2 | 55 | 5 |
| 4 | 40 | 20 |
| 6 | 25 | 35 |
| 8 | 15 | 50 |
| 10 | 5 | 65 |
- 42(a). Plot demand and supply curves on the graph provided below to show their relationship by indicating number of bunches demand and supplied on the horizontal axis and the prices per bunch on the vertical axis.
- 42(b). on the graph
- 42b(i). indicate the equilibrium price
- 43b(ii). indicate the quantity at equilibrium price
- 43b(iii). label the curves
(10marks)

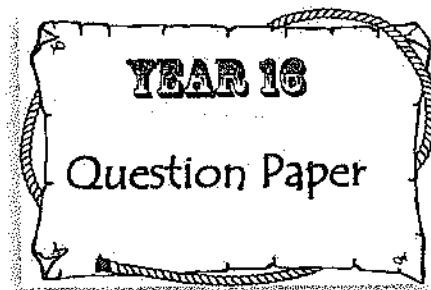
3. Which type?
A
B
C
D

5. What to a small
6. W m

Tat
on 1
Qu

B
d
N
M
C
F

7.

**SECTION A**

Multiple Choice (30 marks)

Instruction: There are thirty questions in this section. Encircle the letter of your choice representing the right answer.

1. Which of the following are the three classes of soil?
- sand, gravel and clay
 - gravel, clay and loam
 - clay, loam and sand
 - loam, sand and gravel
2. How many maize seeds should be planted per station if the planting stations are 60cm apart?
- 1
 - 2
 - 3
 - 4

3. Which of the following form the three types of surface irrigation?

- A. sprinkler, flood and basin
- B. flood, basin and furrow
- C. basin, furrow and sprinkler
- D. furrow, sprinkler and flood

5. Which of the following is a contribution to agricultural production by smallholder farmers?

- A. training other farmers on food production
- B. Producing food for consumption
- C. carrying out research on food production
- D. selling farm inputs to other farmers

6. Which of the following is a sign of itch mite attack in pigs?

- A. loss of appetite
- B. rough hair coat
- C. dry, scaly skin
- D. reduced growth rate

Table 1 shows results of an experiment on poultry breeds. Use it to answer Questions 7 and 8.

Table 1	
Breed	Eggs laid per week
M	8
N	5
O	6
P	2

7. The aim of the experiment was to find out the effect of

- A. number of eggs laid per week
- B. different breeds on egg production
- C. number of breeds on egg production
- D. age of breeds on egg production

8. Which one was the best breed?

- A. M
- B. N
- C. O
- D. P

9. Which of the following factors should be considered when designing a field experiment?

- A. replication
- B. transport
- C. market
- D. climate

10. Which of the following crop husbandry practices helps crop residues to rot and form humus?

- A. early planting
- B. correct spacing
- C. crop rotation
- D. early land preparation

Early leaf blight is a disease that attacks tomatoes. use this information to answer Questions 11 to 13.

11. What causes the disease?

- A. virus
- B. bacteria
- C. fungi
- D. protozoa

12. How is the disease spread?

- A. by army worms
- B. by wind
- C. by splashes of water
- D. by aphids

13. Which of the following chemicals can be used to control the disease?

- A. dithane M45
- B. dimethoate
- C. carbaryl
- D. actellic dust

14. Which of the following is a sign of "Gumboro" in poultry?

- A. blood diarrhoea
- B. ruffed feathers
- C. twisting of necks
- D. swollen cloaca

15. What name is given to a farming system when maize is grown together with trees?

- A. shifting cultivation
- B. mixed farming
- C. agroforestry
- D. crop rotation

20. What is the use of the part labelled X?

- A. to weigh the sample
- B. to heat the sample
- C. to cool the sample
- D. to stir the sample

21. Which of the following is a symptom of early leaf spot in groundnuts?
- reddish brown spots on leaves
 - tiny yellow leaves
 - black substance on pods
 - water soaked leaves
22. Which of the following are the two main breeds of pigs in Malawi?
- Spotted Black and Spotted White
 - Large white and Berkshire
 - Hampshire and Spotted white
 - Saddle back and large white
23. Which of the following is a problem of agricultural marketing?
- storage of farm produce
 - Inadequate land
 - inadequate land
 - Storage of farm inputs
24. Which of the following is an input cost in crop production?
- purchase of amprol
 - purchase of layers mash
 - purchase of day old chicks
 - purchase of fertilizer
25. Which of the following is a symptom of damping off disease in vegetables?
- yellowing of leaves
 - brown spots on leaves
 - water soaked leaves
 - curling of leaves
26. Which of the following is a chemical weathering agent?
- wind
 - temperature change
 - plants
 - carbonic acid

Table 2 shows the relationship between price and supply of oranges at a certain market. Use it to answer **Questions 27 and 28.**

Table 2	
Price (MK/kg)	Supply (kg)
50	80
60	90
70	100
80	110

27. What is the relationship between the price and supply of oranges?
- when the price decreases, the supply of oranges increases
 - when the price increases, the supply of oranges increases
 - when the price increases, the supply of oranges decreases
 - When the price increases, the supply of oranges remains.

28. What is the price of oranges when the supply is highest?
- 80MK/kg
 - 70MK/kg
 - 60MK/kg
 - 50MK/kg

29. What type of weeding is recommended in groundnuts before flowering?
- light hoeing
 - uprooting
 - slashing
 - banking

30. The removal of excess plants from a vegetable garden is known as
- transplanting
 - staking
 - hardening off
 - thinning

SECTION B (36 marks)

Answer all questions in the spaces provided

31. A farmer observed the following signs of a disease in one of the pigs:
- blood in faeces
 - high body temperature
 - difficulty in breathing
 - weak legs

- 31a. Name the disease that attacked the pigs (1mark)
- 31b. What organism causes the disease? (1mark)

31c. How can the disease be transmitted to other pigs? (1mark)

31d. Give one way of preventing the disease (1mark).

32. Table 3 shows rates of fertilizer application to maize

Table 3

Fertilizer	Rate/ha
Urea	100kg
23:21:0+4S	200kg
CAN	200kg

32a. Calculate the number of 50kg bags of 23:21:0+4S fertilizer that will be needed for a hectare (2marks)

32b. From the table, give two top dressing fertilizers (2marks).

33. Figure 3 is a diagram of a farm equipment.

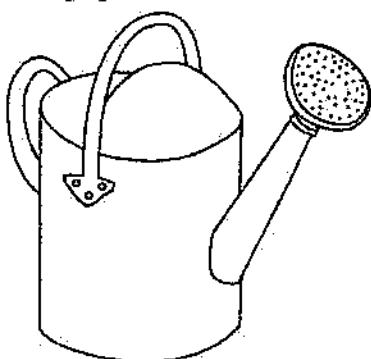


Figure 3

33a. name the farm equipment (1mark)

33b. Name the source of power that can be used to operate the farm equipment (1mark)

33c. Give any two reasons for observing safety measures when using the farm equipment (2marks)

34. A farmer growing cabbages kept the following record for the enterprise:

- bought seed.....K200.00
- bought fertilizer.....K1000.00
- bought insecticides.....K300.00
- labour charge.....K500.00
- price per head of cabbage....K20.00

34a. Write down all the costs for the farmer (4marks).

34b. Calculate the total income if the farmer produced 300 heads of cabbages and sold them all (2marks).

34c. Calculate profit/loss for the farmer (2marks).

35. State three ways in which early planting of maize results in high yield (3marks)

36. Figure 4 is a diagram of the digestive system of a farm animal

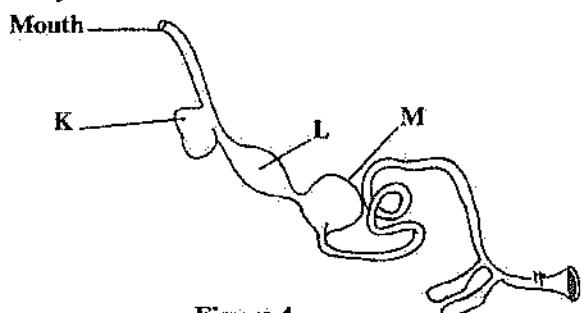


Figure 4

36a. To which class of livestock does the animal belong? (1mark)

36b. Name the parts labelled K, L and M (3marks)

36c. State one function of the part labelled K (1mark).

37a. List any two types of experimental designs (2marks)

37b. Give any four ways in which improving agricultural production is important in Malawi (4marks)

38. State any two ways in which wind is important in agricultural production (2marks).

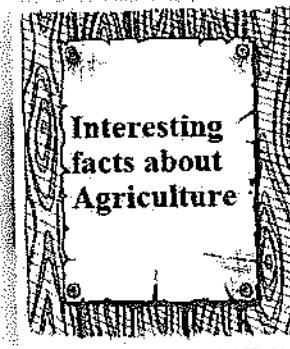
SECTION C (34 marks)

Instruction: Answer all the questions in the spaces provided

39. Give any four reasons for preparing land for growing crops (8marks).
40. Draw a well labelled soil profile and indicate the following:
 • Letter W in the most cultivated layer
 • Letter Y in the least cultivated layer
 (8marks).
41. Explain any four ways in which intensive farming can support the growing population in Malawi (8marks).
42. Group the following marketing activities into exchange, Physical ad Facilitating functions:
 -risk bearing,
 -transportation,
 -advertising,
 -financing,
 -packaging,
 -buying,
 -market intelligence,
 -selling,
 -grading and processing.

Exchange functions	Physical Functions	Facilitating function

(10 marks)



*Bananas are the number one fruit crop in the world
 Bananas are the 4th largest crop after wheat, rice, and corn. India is the biggest producer of bananas than any other country.*



Section B

Answers to Question Papers



- 1**
C; He classified plants
- 2**
B; Rice
- 3**
A; Nitrogen
- 4**
A, Physical
- 5**
C; hydration and carbonation (2 and 4)
- 6**
C; 1 and 2
- 7**
B; by making contour bunds and by correct spacing (2 and 4)
- 8**
D; number 6
- 9**
B; mastitis
- 10**
C; 2
- 11**
A; 1
- 12**
B; weathered rock
- 13**
Diazinon or Endosulfan (options in the question not applicable)
- 14**
C; 70 people/km²
- 15**
A; 150 people
- 16**
C; land becomes scarce, food becomes inadequate and environmental degradation increases (1, 2 and 4).
- 17**
A; by practicing family planning methods
- 18**
D; It responds well to fertilizer application
- 19**
B; close spacing and uprooting infected plants (1 and 2 only)
- 20**
A; Fresian
- 21**
B; 24 kg
- 22**
A; single superphosphate
- 23**
B; to allow the seedlings to adapt to field conditions
- 24**
C; crop
- 25**
A; Q
- 26**
B; R
- 27**
A; as price increases, the supply of goods also increases
- 28**
the water is shallow for easy breeding of fish
- 29**
D; leucaena, silver leaf and siratro (1, 3 and 4)
- 30**
B; pericarp
- 31**
B; plumule
- 32**
C; to grow into a shoot
- 33**
C; Chibuku Products and Grain and Milling Company
- 34**
B; the degree of responsiveness of the quantity of goods demanded to changes in price offered.
- 35**
D; the entire area from which drainage is received by a body of water
- 36**
B; sowing pasture seed into an already established pasture
- 37**
D; soft rot

- 38**
A; 16
- 39**
D; 300 kg
- 40**
D; input to use based on the added yield
- 41**
B; It is a way of finding out the truth of something or an idea
- 42**
C; It serves as a comparison of results

- 43**
B; to help produce improved varieties and improved breeds of livestock, and to improve methods of farming (1 and 2).
- 44**
A; goats, sheep and cattle (1, 3 and 4)
- 45**
D; produce tender grass that animals can easily digest, control some livestock pests and parasites, and prevent bush encroachment or scrub regrowth (2, 3 and 4)

- 46**
A; rotational grazing
- 47**
A; weevil
- 48**
C; water
- 49**
A; 5g
- 50**
D; 50%

- 19.** A,
ga
3)
- 20.** C,
ga
3)
- 21.** D,
pl
- 22.** D,
- 23.** A
- 24.** C,
1
- 25.** 0
- 26.**
- 27.**
- 28.**
- 29.**
- 30.**
- 31.**
-1
-2
-3
-4
- 32.**
- 33.**
- 34.**
- 35.**
- 36.**
- 37.**
- 38.**
- 39.**
- 40.**
- 41.**
- 42.**
- 43.**
- 44.**
- 45.**
- 46.**
- 47.**
- 48.**
- 49.**
- 50.**



1. B, green leaves and layers mash (1 and 4)
2. A, to teach new technologies to farmers
3. B, increase it
4. D, cattle and water (3 and 4)
5. A, chick mash
6. B, uncertainty in weather condition
7. D, soil water, humus, soil air and rock particles
8. D, weevil and grain moth (1 and 3)
9. C, casual labour and feed (2 and 3)
10. B, number of eggs collected per day, amount of feed consumed per day and cost of chickens incurred at buying the chickens (1, 2 and 4)
11. C, silvery colour, varying from dark to grey
12. C, to find out the effect of different application rates of Urea on bean yield
13. B, there was too much nitrogen for the beans
14. B, 280 kg
15. B, African swine fever
16. D, water reaches the roots of plants, weeds growing between planting stations wilt and die, water loss due to evaporation is reduced (1, 2 and 4).
17. B, where to produce, how to produce and what to produce (1, 2 and 4)
18. C, constructing contour bunds

- 19.** A, it helps in seed formation
- 20.** C, use of crop rotation, use of thick organic mulch and early planting (1, 2 and 3)
- 21.** D, sulphate of ammonia, single super phosphate, muriate of potash
- 22.** D, black powdery spores
- 23.** A, brooding
- 24.** C, when supply increases and demand remains constant, the price falls
- 25.** C, making agricultural loans accessible to them
- 26.** C, soil texture
- 27.** D, because it can easily be changed to other forms of capital
- 28.** D, K500.00
- 29.** D, 100 kg
- 30.** A, more water is retained
- 31**
- transportation
- advertising
- displaying
- 32a**
to prevent heart burns
- 32b**
By construction a path pool
- 33a**
It is a process of allocating scarce resources to attain desired goals
- 33b**
Size of land which affects amount of yield
- 34a**
When seedlings are 10cm high
- 34b**
It prompts root establishment and development
- 35a**
Contour bands
- 35b**
It helps in facilitating water infiltration and reducing speed of water
- 36a**
Biological weathering process
- 36b**
Roots absorb nutrients from the rock thereby weakening it
- 37**
- assembling materials
- clearing of bush
- Dig holes to a depth of 60cm
- 38a**
- Decrease in product price: decrease production It reduces production hence reducing supply by making farmers abandoning production
- Quota system: It limits potential farmers from producing to their maximum
- 39a**
- It should be viable
- Should be disease free and pest free
- 39b(i)**
 $(100/180)100\% = 55.6\%$
- 39b(ii)**
The germination percentage is low meaning it is not a good seed
- 40a**
- It should be well-ventilated for easy supply of oxygen
- It should be strong enough and secure to protect and secure to protect chicks from predators
- 40b**
- They require different nutrient levels
- Their alimentary canals digest feeds at different levels
- 41a(i)**
It is Omasum

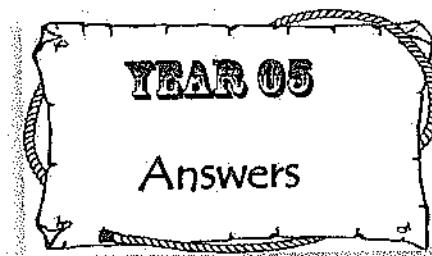
41a(ii)
It is proventriculus

41a(iii)
These animals are able to make proteins on their own

41b
- It separates fine food from coarse
- It retains foreign materials e.g stones

42a
The smaller the family size, the good the food security

42b
- It ensures availability of food where it is not produced
- It makes importation of food from other countries and available to people in Malawi



1
B, spray race

2
A, controlling ticks by showering animals with chemicals

3
C, sprayer and permanent labour (3 and 4)

4
A, a large number of birds can be kept in a small area

5
A, it sucks blood

6
D, African swine fever

7
C, spraying animals frequently with chemicals

8
farm records and budgeting (2 and 4)

9
C, the temperature on

germination

10
A, 336

11
A, feed animals in their khola, plant bananas in the gullies and relocate animals to new grazing land (1, 2 and 4)

12
A, air

13
B, 10 per cent

14
C, there will be no pollination since wind is blocked

15
B, draining excess water

16
D, S

17
C, R

18
A, on the shoulder with the blade up

19
A, depth of subsoil

20
C, free range to intensive

21
C, MK8,500.00

22
D, MK13,500.00

23
A, MK22,000.00

24
D, K12,000.00

25
B, 15 kg

26
D, terraces

27
D, It stores water

28
D,
29
B,
30
B;
de
be
ac
se
31
R
W
C
32
C

28

D, coccidiosis

29

B, keep litter clean and dry

30

B; raises participation of females in decision making, promotes team work between males and females, and increases access of females to extension and credit services (1, 2 and 4).

31a

Roughages have low nutrient content while concentrates have high nutritive content.

31b

Calcium helps in strong shell formation

31c

They are Additives

32a

The price is K64

32b(i)

The supply will be reduced to 16 kg

32b(ii)

Suppliers will not be content with the price hence few will supply

32c

A rise in price increases the supply of rice and a fall in price reduces the supply of rice.

33a

It is crop

33b

A: It is for storing and moistening food
B: It is for crushing solid food - physical digestion

33c

It is the proventriculus

34a(i)

There is no randomisation

34a(ii)

There is no accuracy in the results

34b

It is treatment Z

35a

It is intercropping/mixed cropping

35b

- There are high combined yields
- Beans will fix nitrogen which is used by maize hence increasing maize yield.

36a

- Size of land which determines the quantity of yield
- quality of land soil which determines the type of crop to be grown
- Nature of the land (topography) which determines the cropping system.

36b

Choosing the enterprise to engage in

37a

It is basin irrigation

37b

- It requires a lot of labour
- It needs skilled personnel

38a

It is money or any item which can be sold to get money to start or expand a farming business

38b

- HIV/AIDS kills the most productive farmers
- It uses Capital resources for farming in the treatment

39a

- It reduces the speed of run-off and makes water sink into the soil
- It holds soil particles together enabling the soil to resist erosion
- Vegetation traps rain drops reducing splash erosion

39b

- making fire breaks which prevents fire entering forests
- Re-afforestation which replaces trees which have been cut

39c

It leaves the soil bare a characteristic that encourages soil erosion

40a

- It aims at bringing more land under cultivation
- It saves time and increases production

40b

Milking machines
an elastrator

40c

- Capital must be considered since it is expensive
- The type of production must be profitable

41a

- A is a Cutworm
B is an Aphid
C is a Beetle

41b

It sucks sap from the vegetables thereby making it wilt

41c

They cut the vegetable at ground level causing it to fall

41d

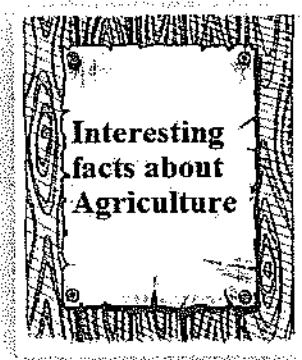
- B can be controlled by spraying Dimethoate (rog)
- C can be controlled by spraying carbaryl or malathion

42a

- It reduces competition between weed and groundnuts for water
- It reduces incidences of weeds shading sunlight to groundnuts

42b

- Cultural method involving good husbandry practices limiting effects of weeds on crops.
- Biological method in which one organism is used to destroy or suppress the growth of the other weeds.



Interesting facts about Agriculture

Goats were the first animal to be domesticated

According to many studies, goats were the first domesticated animal. They are the cleanest of animals and more select feeders than cows, chickens, or dogs. They will not eat contaminated food or ground food.



- 1**
A, shaver
- 2**
B, prevent anaemia
- 3**
A, sprinkler
- 4**
B, The grass keeps the pens warm at night and cool during the day
- 5**
A, using clean seeds, practising crop rotation, and uprooting and burning infected plants (1, 2 and 3)
- 6**
B, soil structure and soil texture (1 and 3)
- 7**
B, Gumboro
- 8**
A, provides more land for growing crops
- 9**
C, cassava and sweet potatoes (2 and 3)
- 10**
C, blackjack
- 11**
D, raise the extra piglets with diluted cow's milk and clip the teeth of the extra piglets (2 and 4)
- 12**
B, have limited access to extension facilities and are given less chance to participate in decision-making, (1 and 4).
- 13**
C, 3 seedlings emerge
- 14.** A, high cost of production and low price of agricultural products.
- 15**
A, holding water in the furrows
- 16**
C, K200
- 17**
B, 400 kg
- 18**
C, increases supply increases
- 19**
D, low pasture recovery and bare ground (3 and 4)
- 20**
C, piglets to have access to warmth
- 21.** D, 30
- 22.** B, 2.0
- 23**
B, Land is a constraint to smallholder farming
- 24.** B, uprooting
- 25.** B, labour and land (1 and 4)
- 26**
D, making ridges across the

slope and rotational grazing (3 and 4)

27
B, pot belly

28
D, different varieties of maize on yield
29. A, 2.0 kg
30. A, brown spots inside the pod

31a
The quantity of goods that consumers are willing and able to purchase at various prices during a given time

31b(i)
Income of consumers: The money that a consumer earns from either work or any investment

31b(ii)
Size of the population: The number of individuals in a population or the total number of representative individuals in a given population at a given time.

32a
- Age: Those that have not parturated for more than 3 times.
- They should have a longer productive life
- Level of performance. Animals with the highest production level were selected. Good performance is indicated by high milk, and meat production. Good mothering ability.

- Physical fitness i.e. free from any physical defect
- Health. Sick animals do not breed well. Choose those that are disease resistant.

32b

Piglets should be weaned at 8 weeks because the sow's milk declines. This is the old weaning system, recently weaning system is done at 4 to 6 weeks by separating piglets from the sow.

33a

It is a Traditional house

33b

It is raised above the ground which increases the aeration in the house and protects the livestock from predators. It is thatched with grass which makes it cool during the day and warm during the night. It has nesting boxes which give space for laying the chickens

34a

It is 23:21:0+4S (NPK)

34b

It is done through the direct placement of fertilizers in a hole and then thoroughly mixing it with soil. The holes can be made using plates or sticks.

35a

Time can limit women in food production since women are always busy with household chores in the homes instead of having enough time working in the field.

35b

- Large family sizes will need more food for their members. It spends most of its resources on food items and less is invested in farming, hence food insecurity
- Post-harvest wastage can cause food insecurity if farmers do not take care of what is being collected from their fields i.e. stealing done by workers in the field.

36a

It is maize weevil

36b

- They bore into grain

- Their larvae also cause damage to the grains

36c

It is controlled by applying Actellic

37

- Reduces water usage i.e. water targets the root zone of plants
- Prevents fungus. Wet leaves can cause fungus e.g. powdering mildew.
- Prevents soil erosion
- Reduces weed growth

38

- Improve soil texture
- Allow soil to hold water longer
- Increase the bacterial and fungal activity in the soil

39a

200 chicks at K70 each = K14,000
2 bags chick mash K3,000/bag = K6,000
The total = K20,000

39b

Income
= K400x200
= K80,000

Total income – Total Cost
= K80,000 – K20,000
= K60,000

Budget

Gross Income of broilers at K400 each = K80,000

Variable costs

200 chicks at K70 each = K14,000
2 bags of chick mash at K3000/bag = K6,000
Total variable costs = K20,000

Gross Margin

= Gross Income – Total variable Cost (TVC)
= K80,000 – K20,000
= K60,000

In this case, there are no fixed costs.

40a(i)

- Nearness to the market: Vegetables can easily be transported to the market while fresh
- Nearness to water supply: Vegetables can easily be watered and irrigation frequently required for vegetables is done.

40b

- Thinning: To avoid competition for resources among the vegetables. The resources are sunlight, air, water, and nutrients.
- Hardening off: expose the seedlings to sunlight and reduce the frequency of water till it is finally stopped. This helps seedlings to get used to the harsh conditions they will experience once transplanted.

41a

- Wind,
- Water
- Temperature

41b

The soil formation process takes a long time and this depends on the nature of the parent material. The decomposition of organic matter also takes time.

41c

- Application of organic and inorganic fertilizers. These will replenish the nutrients lost from the soil. Organic manure binds the soil particles thus improving soil structure.
- Practising crop rotation: growing different types of crops on the same piece of land following a definite succession improves soil fertility. For example, legumes are included, they add nitrates through nitrogen fixation.
- Controlling soil erosion: Erosion of soil leads to loss of top fertile soil making it less productive. This can be reduced by

mulching, growing cover crops, contour farming, terracing strip cropping and the use of cut-off drains.

- Practising minimum tillage: Over-cultivation destroys soil structuring therefore, reduce the tillage operations as much as possible.
- Practising inter-cropping. Growing different crops on the same piece of land at the same time will provide ground cover hence controlling soil erosion.

42a

$$6 \times 50\text{kg} = 300\text{ kg}$$

42b

A. If 1 adult requires 300 kg/year

Therefore,

$$\begin{aligned} 4 \text{ adults require} \\ = 300\text{kg} \times 4/\text{year} \\ = 1,200\text{ kg} \end{aligned}$$

B. If 1 adult requires 300kg/year

Therefore

$$\begin{aligned} 6 \text{ adults require} \\ = 300\text{ kg} \times 6/\text{year} \\ = 1,800\text{ kg/year} \end{aligned}$$

Family B is food insecure.

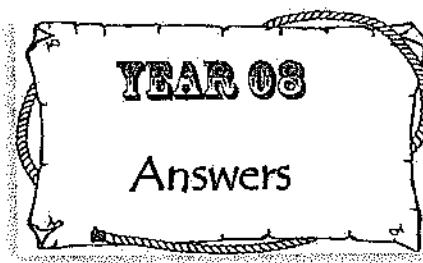
$$\text{Food produced /year} = 1,750$$

The food required for 6 adults is 1,800 kg/year.

Therefore

$$\begin{aligned} \text{Deficit} \\ = 1800\text{ kg} - 1750\text{ kg} \\ = 50\text{ kg} \end{aligned}$$





- | | | |
|---|---|---|
| 1
C, tamps, and lice | 14
A, number of rabbits | particles and Decomposed leaves improve soil structure |
| 2
C, tobacco barn | 15
B, the dry does are unproductive | 27
D, steaming up |
| 3
D, light duration of egg production | 16
C, deforestation, runoff, deposition | 28
B, 40 |
| 4
A, 200 | 17
C, fluctuation of prices | 29
C, Thursday |
| 5
D, increasing the duration of light increases the number of eggs laid | 18
B, reduces the risk of total failure of vegetables | 30
A, The demand is greater than the supply |
| 6
B, Urea | 19
A, it is an animal drug | 31a
They provide information about stock updates and market movements. |
| 7
B, adding iron to pigs' feed | 20
A, scarcity of pastures | 31b(i)
Theft of crops: By using strong and locked storage facilities, mark or stamp tools used, employ guards |
| 8
C, soil 3 | 21
C, growing improved varieties | 31b(ii)
infection of animals: ensuring good hygiene practices, and vaccinating the animals against diseases. Slurry management to prevent infections. |
| 9
A, soil 1 | 22
A, cleaning the granary | |
| 10
D, soil 4 | 23
B, storage | |
| 11
A, for physical digestion of feed | 24
D, nearness to water supply and nearness to a market (3 and 4) | |
| 12
B, cabbages | 25
D, overgrazing and shifting cultivation (3 and 4) | |
| 13
A, construction of box ridges and application of manure (1 and 2) | 26
A, Roots of trees bind soil | |

32b
Early crop deve sunl

33a

33b

34

35

32b

Early planting of groundnuts will help the crop to utilize enough resources for plant development and maturity such as water, air, sunlight and soil nutrients

33a

- Large white
- Landrace
- Tristars

33b

- Pigs don't have sweat glands so to keep them cool they need buildings to provide shade, airflow and water.
- They need warmth in the cold season to prevent pneumonia

34a

- These can adversely affect the health and productivity of the flock including a drop in feed consumption
- They feed on the blood of chickens and cause anaemia and possible death

34b

- the roof of the house should be well thatched
- The walls and the floor should be strong

35a

It is Surface irrigation

35b

- Level lands require high accuracy
- It is required for small fields
- Plants are covered with water even if they do not need them.
- Sometimes limited space gets more water than required
- Not applicable on soil with a high infiltration rate

36a

Stall feeding: There is an accumulation of manure which are used for crop production for a farmer to get a high yield

36b

Mixed cropping: It reduces the risk of crop failure and the total yield per unit area is higher with good management

36c

Agroforestry: Farmers get extra income by selling agroforestry products and people are also employed to take care of trees

37a

- Treatment
- Randomization
- Replication

37b

To find out the varieties which are suitable for different environmental factors such as soil type, temperature, and others.

38

- Cultivation in steep slopes or river banks
- Cutting down of trees carelessly leaves the ground bare leading to soil erosion
- Poor cultivation methods i.e. making ridges along the slope

39a

- Family size. This has an influence on household food security through the production
- Proper food storage i.e. protect food from spoilage

39b(i)

Avoiding preparation of excessive amounts of food: This prevents food wastage since if prepared excessively, some portions may be thrown away.

39b(ii)

Eating a variety of food: Varieties of food help families save other types for future use to prevent hunger among family members.

39b(iii)

Small family size:

- Budgeting for food for small family sizes is easy since even a little amount of money can buy enough food for the family.
- A small piece of land can produce enough food for a small family size

40a

$$\text{But } 1\text{ha} = 10,000\text{m}^2$$

$$100\text{cm} = 1 \text{ m}$$

$$30\text{cm} = ?$$

Number of seeds

$$= (\text{given area} \times \text{number of seeds per station}) / (\text{spacing between ridges} \times \text{spacing between station})$$

$$= (1\text{ha} \times 1 \text{ seed per station}) / (30\text{cm} \times 30 \text{ cm})$$

$$= (10,000\text{m}^2 \times 1 \text{ seed/station}) / (0.3\text{m} \times 0.3\text{m}/\text{station})$$

$$= 111,111 \text{ seeds required}$$

40b

Low production can be realised since there can be competition for resources such as air, water, sunlight, and dissolved nutrients

40c(i)

Light hoeing: By using a sharp hoe to remove weeds in a vegetable or arable land

40C(ii)

This is done by using a light sharp hoe to add soil to the plants so that the roots are not exposed for example in a maize field or legume field.

41a

100 chicks at K160 each =	K10,000
10 bags at K3,000 each =	K30,000
Drugs =	K1,000
Paid labour =	K8,000
Bought charcoal =	K500
Paid water bills =	K500
Total Cost =	K50,000

41b

$$\text{Sold 95 birds at K650} = \text{K61,750}$$

$$\text{Sold manure} = \text{K1,500}$$

$$\text{Total} = \text{K63,250}$$

41c

Profit

$$= \text{K63,250} - \text{K50,000}$$

$$= \text{K13,250}$$

42

Materials: Soil sample from a pit bin

Soil sample from a pit bin which has been burnt, Seeds (maize, bean)

Procedure: Plant some seeds in the soil and label them soil A and B. (A with unburnt soil, B with burnt soil). The plants should be watered equally. Observe how the plants will be growing. After observations, you will conclude from the results which soil is fertile and which one is infertile depending on the outlook of the plants.

OR

Materials: Sample of fertile soil, Sample of infertile soil, Maize seeds, Pots or tins, Water, Ruler

Procedure

Collect a soil sample from a garden where crops have been performing well, fertile soil. Collect another sample from a garden where crops have been performing poorly, infertile soil. Put the fertile soil in the first pot. Put an equal amount of infertile soil in the second pot. Plant a maize seed in each pot at the same depth. Water the seeds in the pots. Practice regular watering of the seeds with the same quantity of water and some frequency. Observe the plants as they grow and note any differences. Measure the height of each plant using a ruler daily.

Day	Plant height	
	Fertile Soil	Infertile soil
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Results: The maize plants germinate at the same time. Seedlings in fertile soil would have a high growth rate compared to seedlings in infertile soil

Conclusion: Fertile soil allows proper and fast growth of plants while infertile soil doesn't



- 1.** A; Chalimbana
- 2.** D; Coccidiosis
- 3.** B; depending on one type of food
- 4.** C; mixed Cropping
- 5.** A; increases the total yield per unit area
- 6.** C; market forces
- 7.** D; They are required in large quantities
- 8.** A; Transport
- 9.** C; Y
- 10.** B; 26-40
- 11.** A; 190
- 12.** C; gravel
- 13.** D; air
- 14.** D; it helps plant roots to respire
- 15.** A; dry and the weather is dry
- 16.** B; sandy loam soil
- 17.** A, rosette
- 18.** B; virus
- 19.** C; planting at correct spacing
- 20.** D; farrowing
- 21.** A; it is suitable for heavy soils
= 105 cm - 100 cm
= 5 cm
- 22.** A; Leghorn
- 23.** B; tick
- 24.** B; sucks blood
- 25.** A; dipping
- 26.** A; agroforestry
- 27.** D; pig
- 28.** D; conserving soil water
- 29.** B; pollution of air
- 30.** C; interest
- 31a**
Chinchilla
NewZealand White
- 31b**
Wooden poles
Bricks
- 32a**
Cash
Inputs
- 32b**
 - making an estimate of what is possible to produce
 - estimate input requirements
 - estimate expected yield
- 33a**
 $N = 105 \text{ cm}$
 $P = 100 \text{ cm}$
Difference
- 33b**
It is a variety M
- 33c**
Tape measure
Ruler
- 34a**
Harvesting tomatoes: It is done by picking/plucking the fruits when they ripe and have turned red or yellow.
- 34b**
Quarantine in pest control: plants seeds are isolated when brought from someplace and observed for some time - the imposition of quarantine to restrict seeds from other areas.
- 34c**
Calculating germination percentage: The number of germinated seeds is divided by number of seeds planted and multiply the result by 100%.
- 35a**
It is family W
- 35b**
 - By producing more food
 - Reducing the number of family members
 - Family W should use improved technology in food production

36a

It is K12

36b

It was 60kg

36c

Suppliers brought more tomatoes in order to make more; more were coaxed by the increased price.

37a

Human Power

Animal power

37b

- Wash your body thoroughly and change clothes
- Never spray against the wind to avoid drift to unintended areas

38

Dams

Tanks

39a $200\text{kg} = 1 \text{ hectare} = 1000 \text{ square meters}$ $1000\text{m}^2 = 200\text{kg}$ $5000\text{m}^2 = ? (\text{more})$

Therefore

 $5000\text{m}^2/1000\text{m}^2 = 1000\text{kg}$ **39b**

When maize is 60cm high

39c

Drilling method

39d

- The fertilizer is placed at recommended depth
- The fertilizer cannot be washed away by run-off
- The fertilizer is not volatile

40a

- Work is done faster and planting is done with the first rains
- A large area is cultivated which increases yields
- It efficiently controls weeds and pests and diseases which helps crops to do well
- Work that can not be done manually is ably done by technology

40b

- Both men and women are involved in the production which increases food production
- When women are involved in the use of equipment and technology, the food production increases

41a(i)

Weaning: It is the removal of the Sow from its litter - separating young ones from the mother and being given solid food.

41a(ii)

At 8 weeks - the old system

At 4 - 6 weeks - the new system

41b(i)

Concrete floor: for easy draining and control of parasites

41b(ii)

Well-Thatched Roof: To avoid leakage and build-up of parasites and pathogens

41b(iii)

Separate Pens: To prevent the sow from crushing piglets

42a

- It helps in photosynthesis which increases crop yield
- It helps in pest and disease control which improves yield
- It influences egg laying in chickens
- It helps in vitamin D formation in animal bodies

42b

- Avoid bush fires
- Establish fire breaks

42c

Organic fertilizers

- Farmyard manure
- composite manure

Inorganic fertilizers

- DAP
- Urea
- 23:21:0+4S



- | | | | |
|-----------------------------|--------------------------------|-----------|---|
| 1 | C, fowl pox | 21 | A, by uprooting and burning infected maize plants |
| A, large white | | 22 | D, maize bran |
| 2 | 12 | 23 | C, eggs with deep yellow yolks |
| D, clearing | B, virus | 24 | B, digest the feed |
| 3 | 13 | 25 | B, 1,500 |
| D, packaging | D, vaccinating | 26 | C, K15,000.00 |
| 4 | 14 | 27 | A, cold weather |
| soil erosion | C, for easy drying of the pods | 28 | B, soil |
| 5 | 15 | 29 | A, timber |
| B, 70% | D, food security | 30 | D, use of local breeds |
| 6 | 16 | | |
| A, supply the maize garden | D, granary | | |
| 7 | 17 | | |
| D, drooping of cobs | D, changes in prices | | |
| 8 | 18 | | |
| A, 750 kg/ha | B, Their stems grow upwards | | |
| 9 | 19 | | |
| B, 1,500kg/ha | C, head smut | | |
| 10 | 20 | | |
| B, basin, furrow, and flood | D, fungus | | |
| 11 | | | |

31a

- To avoid contaminating yourself
- To avoid contaminating other fields
- To avoid pollution the atmospheric

- The use of water is economical compared to surface irrigation
- Soluble fertilizers and herbicides can be mixed with the irrigation water
- It can even be practiced in sloppy areas

31b (i)

Overhead system

31b(ii)

Advantages

- Water is evenly distributed
- Most ideal for sandy soils
- Soil erosion is minimised

31b(ii)

- It is expensive to start
- May destroy soil structure due to the impact of water drops
- The water must be free from solid impurities to avoid blockages
- Increases in incidences of fungal diseases

32a

Mixed farming is the growing of crops and raising animals on the same farm

32b

- It enables the farmer to have food throughout the year
- It spreads the farmer's cash income from sales of crops or livestock
- It gives a more balanced diet to people.
- It promotes better land use (for arable cropping and poor land for animal grazing)
- It spreads the labour so that the farmers will be productive (the farmers will always have something to do to increase food supply)

33a

- Secured land (security)
- Nearness to the water source
- Enough space
- Deep well-drained soil
- Soil should be fertile
- With moderate shading

33b

- Watering,
- Mulching
- Shading
- Picking out
- Pest control
- Weed control
- Thinning
- Hardening off

34a

- Matching piglets to teats: For the piglets to obtain colostrum
- Feeding colostrum milk to piglets: to boost immunity in piglets
- Clipping the teeth of piglets: to avoid injuring the teats of the mother

35a

- Wind
- Water
- Temperature

35b

- Avoiding bush fires
- Avoid careless cutting down of trees
- Avoiding overgrazing
- Practicing afforestation and re-afforestation

36a

- Production
- Budgeting
- Financing
- Budgeting
- Business decision making
- Record keeping

36b

- Give any two sources of Finance for a poultry business
- Commercial banks
- Self-savings
- Cooperative societies
- Agricultural Financial organizations
- Money lending organizations

37a

Demand
Supply

37b

- Demand for a commodity can be affected by the income of a consumer. When a consumer has a lot of money, he will buy in large quantities and vice versa
- Demand is affected by the price of the commodity – when the price is high, the demand becomes low, and when the price is low demand increases
- Supply of bananas can be affected by the price of the commodity in the sense that the higher the price, the more farmers increase production and the more the product becomes available, the lower the price, and farmers end up lowering production

38a

Tapeworm

38b

- Chickens
- Pigs
- Cattle
- Sheep
- Goats

38c

- Give the animals drugs phenothiazine or piperazine
- Free-range animals should not be allowed to interact with those in battery cages or fold pen systems.

39*Cultural methods*

- Early planting
- Use of pest-free seeds
- Burning of crop remains
- Correct spacing of crops
- Practising crop rotation

Chemical methods

- Applying Actellic Dust
- Fumigating seed in storage
- Spraying some crops with Carbaryl

40

	Block 1	Block 2
Plot 1	P	Q
Plot 2	Q	R
Plot 3	R	P

42

To show the presence of microorganisms in the soil

Apparatus and materials:

- 2 250cm³ conical flasks
- Rubber stoppers
- Fresh garden soil
- Muslin bags
- Source of heat
- Lime water

Procedure

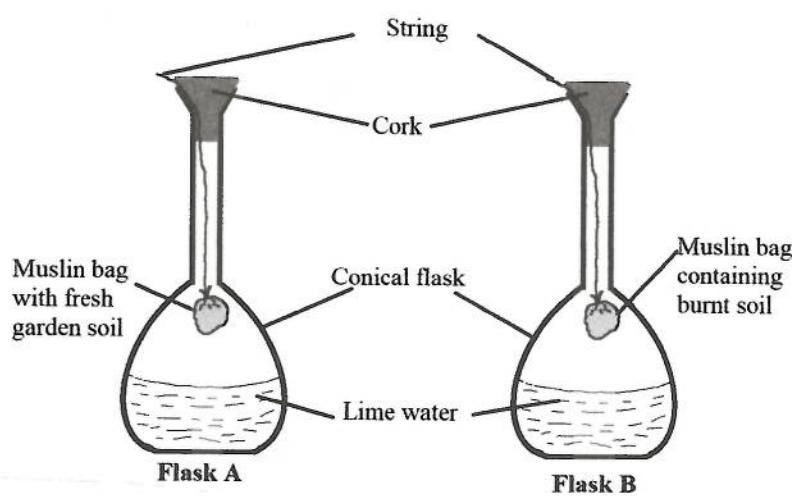
1. put a sample of soil in a muslin bag and tie it with a string
2. Put an equal amount of burnt soil in another muslin bag and tie it with a string
3. Suspend each muslin bag in separate conical flasks containing lime water and label them A and B.
4. Cork the flask tightly
5. Leave the set up for 6-12 hours

Results

The lime water in conical flask A turns milky, while there is no change in lime water in flask B. Burning kills the living organisms so there is no production of carbon dioxide in the flask with burnt soil.

41

- Increased demand for arable land for cultivation
- Increased demand on natural resources such as water for irrigation since rivers have become silted due to erosion
- There is over-exploitation of natural resources for economic benefits such as timber and fuel from trees
- There is the clearing of trees to create construction space such as settlements, roads, and other infrastructure.



Conclusion: Soil contains living organisms.

Note: The question doesn't demand a diagram; it has been created here to give you a clear understanding. You are advised to draw a diagram when the question is saying so and there is enough time. Otherwise, answer according to the question.



1 C, Climate	11 A, P	A, RG1
2 B, loan	12 B, water in the soil	22 C, 23:21:0+4S
3 A, Supply	13 A, 25	23 C, sprinkler
4 D, dollop	14 C, eggshells	24 B, African Swine Fever
5 C, soil	15 D, coccidia worm	25 C, virus
6 B, cattle	16 B, wearing a mask	26 D, killing and burning the diseased pig
7 A, crush	17 A, uprooting	27 steaming up
8 D, to prevent them from withering	18 C, mouse	28 D, increased land for farming
9 A, stall feeding	19 C, budget	29 C, use of improved breeds
10 D, most productive	20 B, storing the farm produce	30 hedge fence
	21	

31a

The artificial application of water in the soil to provide enough moisture for plant growth

31b

There is the economic use of water
Water at low pressure can be used
It does not encourage the growth of weeds in the field
minimizes the spread of fungal diseases on crops

32a

It is Stalk borer (*busseola fusca*)

32b

They feed on aerial parts of maize such as leaves
They make tunnels through stems and weaken them which later fall off

32c

Apply Endosulfan or Diazinon or any recommended chemical

33a

$K10,000 + K1,500 + K15,000 = 26,500$

33b
Tot
Prio
The
To
=(
=K

33c
-I
O
-I
-I
f
-t
a
-T
-T
1
3

33b

Total yields = 3000 kg.
 Price = K50/kg
 Therefore
 Total income
 $= (3000 \text{kg} \times \text{K50})/1\text{kg}$
 $= \text{K150,000}$

33c

- It provides farm history of what happened on the farm
- It helps in planning and budgeting
- It determines the financial status of the farm
- they help farmers to know when to breed animals
- They help farmers to obtain loans from lending institutions
- They help farmers to know how much they have to pay to the government

34a

- Leg mites
- Fleas and lice
- Tampans (fowl ticks)

34b

- Ventilation: the house should be well-ventilated to avoid dampness
- Lighting: Well-lit to enable proper feeding and carrying out other management activities by the farmer
- Size: Large enough to avoid overcrowding
- Leak proof: roof and walls provide protection

35a

- Large white
- Berkshire
- Danish Landrace
- Duroc Jersey

39

	BLKI	BLK II	BLK III	BLIV
Plot 1	0kg	50kg	100kg	150kg
Plot 2	50kg	100kg	150kg	0kg
Plot 3	100kg	150kg	0kg	50kg
Plot 4	150kg	0kg	50kg	100kg

40

Land clearing. Removal of vegetation cover before ploughing e.g trees, crop remains, weeds, grass, shrubs, etc

35b

- It prevents inbreeding
- It enhances the growth rate of pigs
- It makes the piglets docile hence easy to handle
- It controls the breeding of diseases

36a

- Buying
- Selling

36b

- Reasonability of produce
- perishability of some products
- storage
- price fluctuations
- bulkiness of commodity
- poor transportation and communication
- change in market demand

37a

- Growing different food crops (diversification) and eating a variety of foods
- Avoid wastage of food during preparation
- Educating people on good nutrition
- Changing some of the food taboos so that children and women can also eat rich foods

37b

Men and women who work together in decision-making can ensure food security since almost all jobs can be done equally. This ensures full participation in agricultural production.

38

- It should have enough organic matter
- It should be well aerated (enough air)
- It should be well drained (drainage)

Primary cultivation. The initial opening of land either after clearing the bush or after the previous season of cropping

Secondary cultivation. The subsequent land preparation operations which follow primary cultivation e.g making seedbeds, breaking soil clod

Tertiary operations. This follows secondary cultivation, e.g ridging. It is also known as miscellaneous operations.

41

- It saves labour. Operations can be done for many crops at once.
- It increases yield, ie total yield per unit area
- It provides a wide variety of foodstuffs
- It reduces the risk of total crop failure since not all crops can fail at once
- It enables crops to help each other e.g. legumes help in nitrogen fixation to be used by other crops
- It provides soil cover which controls soil erosion
- It reduces the spread of pests and diseases
- It suppresses the growth of weeds

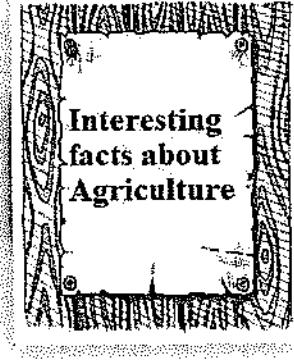
42

Physical methods

- Making ridges across the slope
- Making terraces
- Constructing deck dams
- Constructing contour bunds

Biological methods

- Applying manure
- Practicing crop rotation
- Avoiding overgrazing
- Avoiding bushfires
- Planting grass



Interesting facts about Agriculture

More than 6000 varieties of apple are grown around the world
Yes, that's true. The biggest producer of apple varieties is China, followed by the United States, Turkey, Russia, Iran, and India. Pink lady, Fuji, Empire, Golden Delicious, Gala, Honey crisp are a few varieties.



- | | | |
|----------------------------|-------------------------------|---|
| 1. C, rape and tomato | 12. A, poles and rat guards | 22. A, bush fallowing |
| 2. B, randomization | 13. D, 1983/84 | 23. A, makes food available |
| 3. B, breeding | 14. B, 2, 850 kg | 24. D, brown spots inside pods |
| 4. D, reducing evaporation | 15. A, small families | 25. C, thinning |
| 5. D, K25 | 16. B, uprooting | 26. B, piglets |
| 6. B, K12,000 | 17. B, 40 | 27. C, pneumonia |
| 7. C, increase | 18. D, plant spacing on yield | 28. A, bacteria and virus |
| 8. A, avoid over spending | 19. A. starbro | 29. D, breaking the life cycle of the pests |
| 9. B, leaching | 20. C, drenching | 30. B, maturity |
| 10. C, dusting | 21. C, storage | |
| 11. D, kills pests | | |

31a

- Frequent watering
- Frequent weeding
- Manure and fertilizer application
- Pruning
- Pests and disease control

31b

- Rape
- Denje

32a

- Must be well ventilated
- Should have adequate space
- Should be clean and dry
- Well lit
- Should have a leak proof roof
- Should have nesting boxes
- Should have feeding and drinking troughs

32b

- It is expensive to construct and maintain
- Requires a lot of space since each bird has its own separate box or nest
- It requires a lot of feed and feeding troughs

32c

- To absorb moisture that is contained in the animal dropping thereby making the house dry
- To provide comfort to the animals acting like beddings.

33a(i)

Furrow irrigation/Surface irrigation

33a(ii)

- It requires a lot of water
- Can only work in areas where land is sloppy can promote soil erosion

33b

- Soil water/rainfall,
- vegetation,
- wildlife,
- sunlight energy,
- minerals
- Air

34a(i)

Crop

- Temporary storage of food
- It moistens the feed

34a(ii)

Beak

- To pick up feed and take it into the mouth

34b

- Ruminants have a four chambered stomach while non-ruminants have a single stomach.
- Ruminants can chew the cud while non-ruminants cannot.
- Ruminants digest cellulose while non-ruminants cannot
- Ruminants make vitamins and amino acids while non-ruminants cannot

35a

Interest

$$\begin{aligned}
 &= (\text{principal} \times \text{Time} \times \text{Rate}) / 100 \\
 &= 20000 \times 1 \times (10/100) \\
 &= \text{K}2000
 \end{aligned}$$

35b

Total Amount to be paid

$$\begin{aligned}
 &= \text{Principal} + \text{Interest} \\
 &= \text{K}20,000 + \text{K}2,000 \\
 &= \text{K}22,000
 \end{aligned}$$

36a

It ensures food security

36b

- Depending on one type of food crop such as maize
- Preparing too much food which result in food wastage
- Food taboos which prevent children and women from eating certain foods
- Preparing special meals for visitors.

37a

- It is expensive to buy and maintain machines
- Heavy machines can cause soil compaction.

37b

- Replace supporting poles that are rotten or eaten by termites
- Replace a roof that has started leaking
- Fix holes created on base or wall

38

- Provides inputs to farmers
- Distribute goods and services
- Provide income to people
- Enable farmers to sell their produce

39

Importance of agricultural experimentation

- Assist in the development of high yielding crop varieties
- Introducing new production methods and practices which increases crop production
- Assist farmers in making informed decisions to engage in the most profitable crop enterprises
- Develop mechanisms of reducing the problem of pests and diseases in crops thereby increasing production.

40

Four effects of overstocking

- It causes soil degradation animal hooves are hard and cause soil compaction which is a form of soil degradation.
- Soil erosion, keeping too many animals in one place makes the land bare thereby making the soil vulnerable to erosion agents.
- Overstocking causes desertification. If too many animals are being kept in one place, then deplete the vegetation and cause desertification in the long run.
- Overstocking may also cause environmental pollution. Animal excreta accumulate on the site and produces bad smell which is pollution.

41

Importance of weed control in maize production

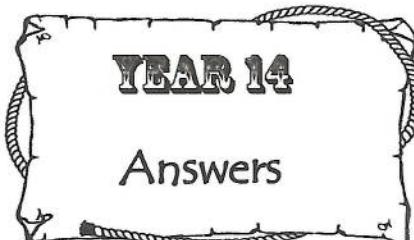
- Increase the quantity of crop yield. Weeding reduces the competition between maize and weeds over resources thereby increasing the maize yield.
- Improves the quality of maize. Weed seeds and leaves contaminate crop produce resulting in loss of quality and value.

- Reduces pests and diseases. Weeds harbour pests and diseases of crop plants as an alternative hosts and once removed, the pests are deprived off and die.

- Weeding improves the efficiency of irrigation. Weeds block irrigation pipes and if removed, the irrigation system cannot be blocked thereby increasing maize yield under irrigation.

42

Physical	Biological	Chemical
Wind	Plant roots	Carbonation
Freezing water	Animal hoofs	Oxidation
Running water	Soil organisms	Hydration
Temperature changes		



- | | | |
|--|--------------------------------|---------------------------------------|
| 1. A; soon after germination | 11. B, doe | 22. C, correct spacing |
| 2. B, feed | 12. D, plant roots | 23. C, cultivation on steep slopes |
| 3. D, sprinkler | 13. A, spotted black | 24. C, biting louse |
| 4. A, Actellic | 14. C, high prices | 25. A, record keeping |
| 5. B, absorbs water | 15. D, market price | 26. C, inefficient |
| 6. A, shifting cultivation | 16. B, 2 | 27. B, air, moisture and warmth |
| 7. C, aphids | 17. A, fence | 28. C, making ridges across the slope |
| 8. D, storage | 18. B, keeps away farm animals | 29. B, stall feeding |
| 9. A, demand decreases and price increases | 19. A, humus | 30. D, increased meat production. |
| 10. D, K8,200 | 20. D, bacterial wilt | |
| | 21. D, bacteria | |

31

- decompose plant and animal waste to humus or organic manure
- help legumes to fix nitrogen into the soil
- They make some nutrients available to plants in the required form.

32a(i)

Refers to protecting or preserving natural resources from depletion

32a(ii)

- Improves the water holding capacity in soil with high drainage
- Improves the fertility of the soil by adding plant nutrients
- Improves soil structure by enhancing the formation of soil aggregates.

32b

It is Biological Method

33a

- Soil air
- Soil water
- Organic matter/humus
- Inorganic matter

33b

- Wind transmit airborne diseases in animals
- Wind destroys farm structures like animal houses

34a.

- Provides inputs to farmers
- Distribute goods and services
- Helps various groups of people to earn income
- Enables farmers to sell their produce
- Adds value to farm products by performing some functions like processing.

34b

- Transportation
- Processing
- Storage

35a

- i. Silting dams
- Reduces the amount of water for irrigation
- May cause flooding which destroy crops
- ii. Lowering of water table
- Scarcity of water when drilling to get water for irrigation

35b

- Drought
- Floods
- Pests and diseases outbreak
- Vandalism
- Theft

36a

It is a Grasshopper

36b

Eats plant parts especially leaves

36c

Carbaryl

37a

- The birds grow slowly and take long to reach slaughter weight
- The birds can easily contact diseases and parasites
- The birds can easily be caught by predators.

37b

- Good or proper housing
- Good or proper feeding
- Good or proper parasites and disease control

38

- Growing different food crops (diversification?)
- Avoid food wastage during preparation
- Changing or discarding some of the food taboos
- Educating people on good nutrition

39

Experiment	What can be changed
Watering	Watering frequently or amount of water
Time of planting	Date of planting
Weeding	Weeding method or frequency
Maize variety	Maize varieties

40

- To enable people or households have frequent meals per day like three meals.
- To enable people eat the preferred staple food like maize flour than maize bran.
- Enables people to eat a variety of meals thereby improving their health.
- Ensures that people are able to eat supplement foods like fruits and vegetables.

41

- It is easy to cultivate the soil because it has moisture and that makes it soft
- To allow crop residues have enough time to decompose into humus
- To maintain the soil structure by improving soil aggregates
- To starve crop pests by depriving them off alternative host like volunteer plants waiting for the next growing season.

42

Leaf	Root	fruit	Legumes
Black Jack	Turnips	Pepper	Bean
Local mustard	Onion	Egg plant	Pea
	Carrot	Tomato	



- | | | |
|--------------------------------|--------------------|--|
| 1. D, doe | 8. C, drought | 15. B, Starbro |
| 2. C, to hold water in furrows | 9. C, 6 weeks old | 16. A, in order to identify the cheapest market and buy from there |
| 3. A, Malimba | 10. A, Carbryl | |
| 4. B, spraying | 11. D, Coccidiosis | 17. D, to loosen the soil |
| 5. C, weeds | 12. B, protozoa | 18. A, capital |
| 6. B, replication | 13. A, amprol | 19. D, damping off |
| 7. D, buying | 14. C, daconil | 20. B, introduction |

21. A, human

25. B, leaching

28. D, debeaking

22. D, leaves

26. D, low infiltration and
high runoff

29. C, Pease

23. A, inadequate land for
farming

27. C, fattener meal

30. B, eggs

24. B, rotting of fruits

31a

it should be of a high yielding variety
pure type – it should not contain any
foreign seed or be mixed

Clearing the land – To remove weeds and
excess bush which would make it difficult
for the farmer to prepare seed beds.

31b

In order to find out whether the seed is
viable or able to germinate

34b(ii)

Mulching – Helps to conserve water by
reducing evaporation

32a

- cattle
- goats
- sheep

35a

For dipping livestock in order to control
external parasites like ticks.

32b

- rumen
- reticulum
- Omasum
- Abomasum

35b

- Wash hands thoroughly with soap and warm water to prevent consumption of chemicals after use.
- a deep tank should have a roof to avoid rain diluting the chemicals
- The dip tank must be filled at two thirds to avoid young animals from drowning or swallowing chemicals.

33a

- provide soil and water conservation by roots binding soil particles together and reducing surface runoff
- provide swelling places for wild animals

36a

sudden death in rabbits and kids
diarrhoea, dysentery, and loss of
condition

33b

When chemicals dissolve in soil water,
they are washed down into water bodies
through run-off causing pollution

36b

- remove the infected rabbits from the house
- adding cocciostas (amprolium) to drinking water of feed

34a(i)

Too deeply – the seed may germinate but
will fail to come out or emerge

37a

Crop rotation

34a(ii)

Too thickly – the seedlings will be thin and tall because they will be competing for food, air, space and water.

37b

- it increases soil fertility if legumes are included in the rotation cycle
- It reduces pests and soil-borne diseases which are host specific

34a(iii)

Unevenly – will result in an uneven growth

34b(i)

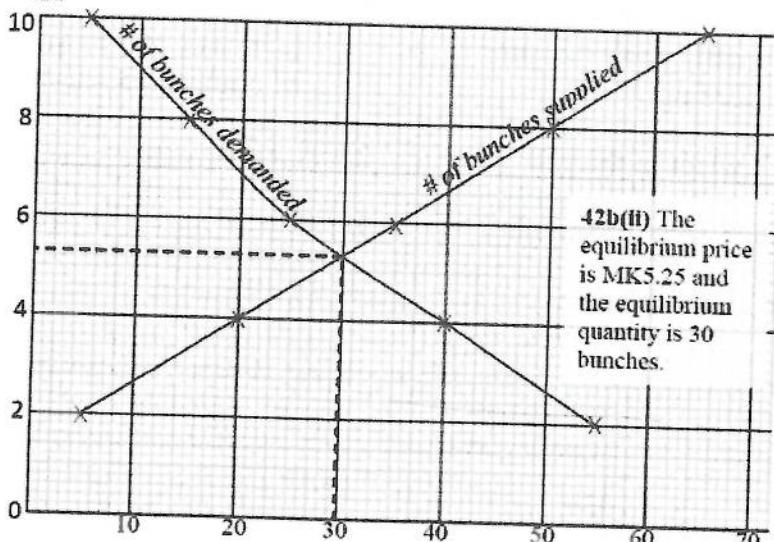
38

- They generate new knowledge on principles of crop and livestock production
- They help in solving a problem of food insecurity
- They come up with new technology to enhance the production of high fields

39

- It leads to tramping of pasture which destroys the pasture especially the young grass
- It leads to soil erosion because the land becomes bare which increases the speed of run-off water
- It leads to sward degeneration which means grass is being grazed to the ground as the result few shoots will grow but very weak.
- It leads to desertification eventually since there is decreased pasture production.

42a



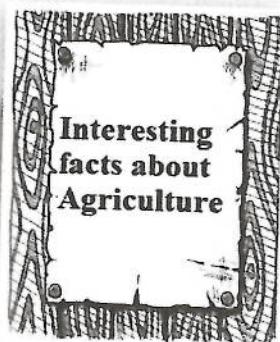
40

- Number of people – the more people there are on a farm, the quicker the operations will be done
- capacity to work: the more capable the work force, the greater will be the output
- Willingness to work: production rises when people are willing to work long hours and are well paid.
- Health of the people: The healthier the workers, the greater the production.

41

Soil Contains Air Experiment Description
The materials needed are a lump of soil, a container and water.

A lump of soil is submerged in a container of water. Bubbles come off the soil. The air in the soil is displaced by water. Therefore this shows that soil contains air.



Crayons are grown from Soybeans
Soybean oil is a crucial ingredient in making crayons. Soya crayons glide smoother and don't flake. The colours made using the soybean oils are dazzling, less toxic to children, and completely biodegradable



1. C, clay, loam and sand
2. B, 2
3. B, flood, basin and furrow
4. D, to compare the treatments in the experiment
5. B, Producing food for consumption
6. C, dry, scaly skin
7. B, different breeds on egg production
8. A, M
9. A, replication
10. D, early land preparation
11. D, fungi
12. B, by wind
13. A, dithane M45
14. D, swollen cloaca
15. C, agroforestry
16. C, 4,400kg
17. C, 5
18. B, the piglets can easily go to the after feeding
19. D, water in the soil
20. B, to heat the sample
21. A, reddish brown spots on leaves
22. A, Spotted Black and Spotted White
23. A, storage of farm produce
24. D, purchase of fertilizer
25. C, water soaked leaves
26. D, carbonic acid
27. B, when the price increases, the supply of oranges increases
28. A, 80MK/kg
29. D, banking
30. D, thinning

31a.
African Swine Fever

31b.
It is a virus

31c.
by lice, ticks and mosquitoes

31d.
By vaccinating or kill and burry the infected animals or disinfect pig houses before housing new stock.

32a
50kg = 1 bag
200 kg = more
 $(200\text{kg}/50\text{kg}) \times 1\text{bag}$
= 4 bags

32b
Urea and CAN

33a
Watering can

33b
Human power

33c
– to avoid accidents/injuries
– farm equipment stays longer and work efficiently

34a
– bought seed – K200.00
– bought fertilizer – K1000.00
– bought insecticides – K300.00
– labour charge – K500.00

34b
Price of cabbage = K20/head
300 heads = $30 \times K20$
= K6,000

34c

$$\begin{aligned}\text{Total Costs} &= \text{K}200 + \text{K}1000 + \text{K}300 + \text{K}500 \\ &= \text{K}2000 \\ \text{Income} &= \text{K}6000 \\ \text{Profit} &= \text{K}6000 - \text{K}2000 \\ &= \text{K}4000\end{aligned}$$

35

- the plants make full use of rains in the growing season.
- plant roots get established early and absorb nutrients before they are leached

36a

Non ruminant

36b

K – Crop

L – proventriculus

M – gizzard (ventriculus)

36c

It secretes mucus which softens and moisten the food

37a

- Randomised block design
- Latin square design

37b

- it ensures that the country has enough food to feed the growing population
- it helps in the development of local industries because raw materials are made available
- it generates income for farmers and this improves people's standard of living
- By exporting crops, the country earns foreign exchange.

38

- It helps in seed dispersal
- It brings about rainfall
- It helps in pollination in plants

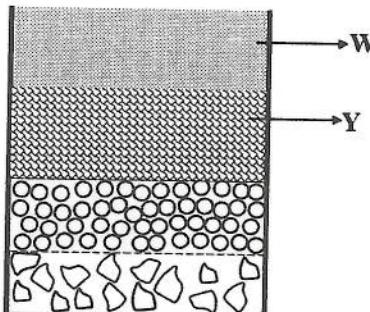
39

- To break up the hard surface of soil and loosen the soil for air to penetrate and circulate easily

- To destroy weeds, pests and soil borne diseases since they are exposed to the sun.

- To conserve soil and water through ridging

- To remove weeds and excess bush which would make it difficult for the farmer to prepare seed beds.

40**41**

- It enables farmers to obtain high yield per unit area in terms of both quantity and quality.

- It conserves the land in a way that it encourages the use of farm resources which help to avoid soil erosion and degradation

- It promotes efficient use of inputs like fertilizers which result in high yield.

- Reduces risks and uncertainty e.g mixed farming which gives the farmer to fall back on in times of bad weather.

42

Exchange Functions	Physical functions	Facilitating function
buying	transportation	Financing
selling	packaging	Marketing intelligence
buying	grading	Advertising
	processing	Risk bearing