



EXAMINATIONS COUNCIL OF ZAMBIA
JUNIOR SECONDARY SCHOOL LEAVING EXAMINATION (GRADE 9) – 2020

Agricultural Science 501/1

Paper 1 Specimen

(INTERNAL & EXTERNAL CANDIDATES)

Time: 2 hours 30 minutes

Marks: 100

Instructions to Candidates

- 1 Pull out the Answer Booklet from the question paper.
- 2 Write your **name, examination number, school/centre name and code** on the Answer Booklet.
- 3 Answer **all** the questions.
- 4 There are **two** sections in this paper, **Section A** and **B**. In **section A**, four suggested answers are given **A, B, C** and **D**. Choose the best one and show it on the Answer Grid by marking it with a cross (**X**).

Example if the answer is D

A	B	C	D
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- 5 For **Section B**, write your answers in the spaces provided in the Answer Booklet.
- 6 Hand in the Answer Booklet and the rest of the question paper separately.

Information for Candidates

Cell phones are not allowed in the examination room.

Calculators are not allowed in the examination room.

DO NOT TURN THIS PAGE UNTIL YOU ARE TOLD TO DO SO.

Section A [20 marks]

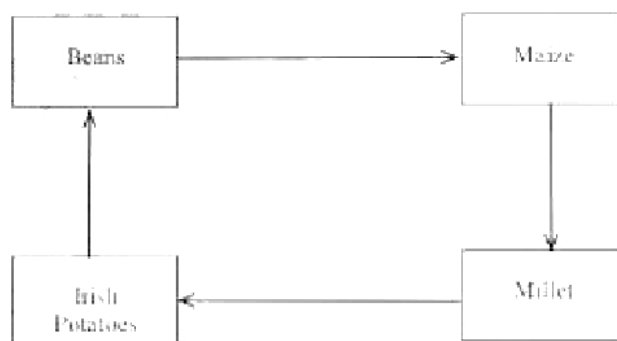
- 1 Which of the following is a major agricultural activity in Zambia?
 - A Bee Keeping
 - B Livestock production
 - C Mushroom growing
 - D Textile
- 2 Weathering is the breaking down of rocks to form...
 - A all components of the soil.
 - B cracks which allow air into the soil.
 - C inorganic particles of soil.
 - D organic matter of soil.
- 3 Cassava is propagated from ...
 - A cuttings.
 - B runners.
 - C seeds.
 - D tubers.
- 4 What is the best time to plant groundnuts?
 - A At the beginning of the rains.
 - B Before the end of the rain season.
 - C During the period of heavy rains.
 - D One month before the onset of the rains.
- 5 What is the use of an inventory?
 - A Ensures that all the accounts of the farm are maintained in a single book.
 - B Ensures that all the assets of the farm are accounted for.
 - C Basis for calculating yields of farm enterprise.
 - D Basis for calculating profit of the farm business.
- 6 Which of the following hand tools is used to break soil clods after digging a seed bed for cabbages?
 - A Garden fork
 - B Hoe
 - C Rake
 - D Spade

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- 11** Which of the following implements is used for breaking up hard pans?
- A** Disc harrow
 - B** Mould board plough
 - C** Rotary cultivator
 - D** Subsoiler
- 12** The recommended amount of fertiliser for groundnuts is 250kg/ha of single superphosphate.
How many 50kg bags are required for 5 hectares?
- A** 5 bags
 - B** 10 bags
 - C** 25 bags
 - D** 50 bags
- 13** What behaviour of chicks acts as warning to the farmer about low temperature in the brooder house?
- A** Crowding under the lamp
 - B** Opening of beaks and wings
 - C** Pecking each other's feathers
 - D** Scattering all over the brooder
- 14** Study the diagram of a crop rotation below carefully.

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Which of the crops in the rotation above is wrongly placed?

- A** Beans
- B** Irish potatoes
- C** Maize
- D** Millet

- 15 Anaemia in piglets is prevented by giving them ...
- A a ration rich in proteins.
 - B an injection of iron supplement.
 - C some mineral licks.
 - D vitamin supplements.
- 16 The main objective of Agribusiness is to ...
- A create many jobs.
 - B feed the nation.
 - C make maximum profit.
 - D obtain foreign currency.
- 17 A farmer constructed a farrowing pen as shown in the diagram below.



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- The part labelled **T** was included to protect piglets from being ...
- A attacked by wild animals.
 - B rolled over by the sow.
 - C soaked by heavy rains.
 - D stolen by thieves.
- 18 One of the reasons for dehorning calves is to make them ...
- A easier to handle.
 - B grow very fast.
 - C more suited for work.
 - D produce quality product.

- 19 A sow that shows signs of heat after the 19th to the 23rd day after service should be ...
- A culled and sold.
 - B mated again.
 - C moved to a farrowing pen.
 - D tested for pregnancy.
- 20 Farmers practice mixed farming to ...
- A prevent crops from being attacked by pests.
 - B ensure that crops and livestock benefit from each other.
 - C prevent any losses on both enterprises.
 - D produce all cultural products on sale.

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SECTION B

[80 marks]

1 AGRICULTURE IN ZAMBIA

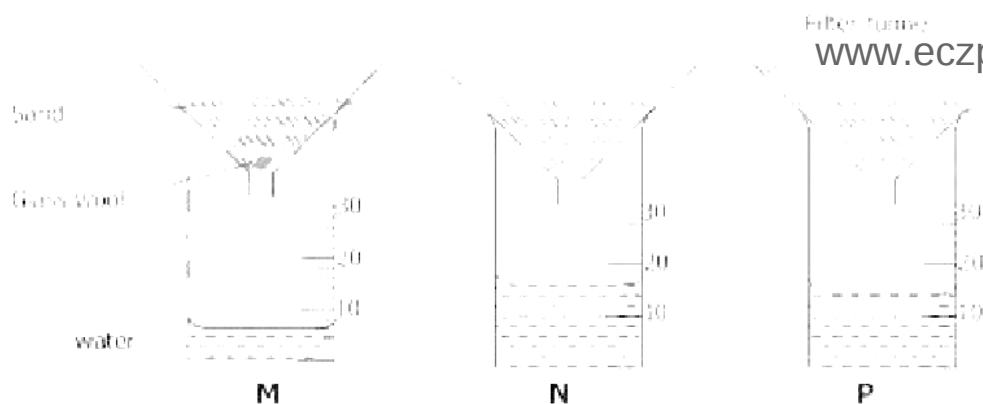
- (a) Give **three** reasons why most commercial farming takes place along the line of rail. [3]
- (b) Explain the importance of good roads in the development of agriculture. [3]
- (c) Why are farmers advised to diversify their crop production? [2]
- (d) Name one government agency that assists farmers in the marketing of agricultural produce. [1]
- (e) Which Ministry in Zambia provides agricultural extension services to farmers? [1]

[Total marks: 10]

2 SOIL SCIENCE

A learner carried out an experiment on water holding capacity of soils.

The learner placed 10g of different samples of soil into the funnels and poured 20cm³ of water over each funnel. The result was as shown below.



- (a) (i) How much water was retained in **M** and **P**? [2]
- (ii) Which of the soils has the best water holding capacity? [1]
- (iii) What should a farmer do to the soil with water holding capacity such as sample **N**? [1]
- (b) State the importance of soil water to plants.
- (c) Which of the soil samples would have,
- (i) high nutrient content available to crops,
- (ii) high acidity? [2]

- (d) Name **two** components of soil other than water. [2]
- (e) Which soil fraction is responsible for high water holding capacity of soil? [1]

[Total marks: 10]

3 CROP PRODUCTION

- (a) (i) State **two** factors that make a site suitable for vegetable production. [2]
- (ii) What is the importance of handling vegetables correctly for marketing? [1]
- (b) Explain the importance of legumes in crop rotation. [1]
- (c) Give **three** ways in which weeds reduce yields of crops. [3]
- (d) What pest causes the staining of the lint and boths of cotton? [1]
- (e) Why are farmers advised to destroy cotton plants soon after harvesting? [1]
- (f) Why do farmers dry maize to 10 – 12% moisture content before storage? [1]

[Total marks: 10]

4 FORESTRY AND CONSERVATION FARMING

- (a) (i) Give **two** sources of organic manure. [2]
- (ii) State **three** ways in which trees help to prevent soil erosion. [3]
- (b) How can a farmer make an organic pesticide using onion, green paper, a clover of garlic and soap? [2]
- (c) Explain the effect of mono-cropping on crop yields. [1]
- (d) Which **two** methods do farmers usually use to sow seeds under conservation farming? [2]

[Total marks: 10]

5 LIVESTOCK PRODUCTION

- (a) State the nutritional value of cattle. [1]
- (b) How can a farmer control black quarter disease in cattle? [3]
- (c) Why are some cows on certain farms unable to produce young? [2]
- (d) (i) Explain how castration is carried out on a young animal using burdizzo pincers. [2]
- (ii) Why is it important to carry out castration before calves are aged **three** months or before weaning? [2]

[Total marks: 10]

6 FARM STRUCTURES

- (a) (i) What is a crush pen? [1]
- (ii) Give **four** important operations that are easily carried out in a crush pen. [4]
- (iii) How does the crush pen make it easier to handle cattle? [1]
- (b) What happens to cattle as they pass through the following parts of a dip tank:
- (i) foot bath,
- (ii) dip bath,
- (iii) drainage race? [3]
- (c) State why cattle are regularly sprayed. [1]

[Total marks: 10]

7 FARM MACHINERY

- (a) The diagrams below show two tractor drawn implements. Study the diagrams carefully.



- (i) Identify the implements **P** and **Q** shown above. [2]
- (ii) State the functions of each of the implements **P** and **Q**. [2]
- (iii) How can the part labelled **X** be:
- 1 prevented from rusting,
 - 2 kept sharp? [2]

- (b) (i) Which part of a hand sprayer is moved in order for the spray to be released? [1]
- (ii) What precaution can be taken when spraying pesticides using a hand sprayer on a windy day? [1]
- (iii) What are the functions of the following in a hand sprayer;
- 1 Tank,
 - 2 Pump?
- [2]

[Total marks: 10]

8 FARM MANAGEMENT

A Grade 9 learner carried out a chicken project in Agricultural Science. The learner made the following transactions:

A Purchases

- 1 2nd February 2019 bought 10 bags of starter and finisher mash at K200.00 per bag and chick formula at K50.00.
- 2 14th February 2019 bought 100 chicks at K5.00 each.

B Sales

- 1 28th March 2019 sold 94 chickens at K50.00 each and sold 20 bags of chicken manure at K25.00 each.

Enter the information on purchases and sales in the appropriate columns in the table provided. [5]

Calculate the;

- (a) income,
- (b) expenditure, [2]
- (c) profit or loss of the project. [3]