Agricultural Science (501/1, 2, 3) Preamble

The Examinations Council of Zambia has made adjustments to the assessment of Agricultural Science at Grade 9 level so as to be in line with the revised Agricultural Science Junior Secondary School Syllabus of 2013 developed by Curriculum Development Centre (CDC) of the Ministry of Education, Science, Vocational Training and Early Education (MESVTEE).

The purpose of the specimen papers is to guide the teachers and would be candidates on the nature and content of the Grade 9 Agricultural Science examination which will begin to be administered in 2015 examination session.

Assessment Aims and Objectives

The purpose of the Grade 9 Agricultural Science examination is to test candidate's understanding and ability to apply the subject in real life. Assessment of Grade 9 students in Agricultural Science will contribute to the certification of candidates, measurement of academic attainment, promotion of learners to Grade 10 and feedback to educators on effectiveness of instruction. The Grade 9 examination will assess candidate's performance against the following three (3) Assessment Objectives:

1. knowledge with understanding
2. handling of information and problem solving
3. practical activities.

Test Design

The Grade 9 examination will consist of three papers: Paper 1 (501/1), Paper 2 (501/2) and Paper 3 (501/3).

Paper 1 (1 Hour) will consist of 40 compulsory multiple choice items (questions) carrying 40 marks. The 40 questions will be drawn from all the topics of the syllabus.

Paper 2 (2 hours) will consist of 8 compulsory structured questions carrying 10 marks each. The 8 questions will also cover all the topics in the syllabus.

Paper 3 will be a school-based project done in the period beginning from Grade 8 term 3 and ending by Grade 9 term 2. Each pupil is expected to maintain records of project work in an exercise book or file which should be available for inspection and assessment. The Head of Department, Headteacher and Standards Officers in charge of Examinations at district level will monitor projects for candidates at different stages of implementation.

The number of questions and mark weighting is summarised below;

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>PAPER TYPE</th>
<th>NO. OF QUESTIONS</th>
<th>MARKS</th>
<th>WEIGHTING OF MARKS</th>
<th>TIME ALLOWANCE</th>
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<tbody>
<tr>
<td>501/1</td>
<td>Multiple Choice</td>
<td>40</td>
<td>40</td>
<td>29%</td>
<td>1 hour</td>
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<td>501/2</td>
<td>Theory</td>
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<td>501/3</td>
<td>Project</td>
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EXAMINATIONS COUNCIL OF ZAMBIA

JUNIOR SECONDARY SCHOOL LEAVING EXAMINATION (GRADE 9) - 2014

AGRICULTURAL SCIENCE 501/1
PAPER 1
(SPECIMEN)

(INTERNAL AND EXTERNAL CANDIDATES)

TIME: 2 HOURS
MARKS: 80

INSTRUCTIONS TO CANDIDATES

1. Pull out the Answer Sheet from the question paper.

2. Write your name, examination number, school/centre name and code on the Answer Booklet.

3. Attempt ALL the questions.

4. For each question, four suggested answers are given A, B, C and D. Choose the best one and show it in the Answer Booklet by marking it with a cross (X).

   Example 41
   A    B    C    D

5. 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.

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

This question paper consists of 12 printed pages.
<table>
<thead>
<tr>
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<th>A</th>
<th>B</th>
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SECTION A

Answer all questions.

1 A farmer constructed the following structure for a sow.

![Diagram of a farm structure]

The diagram above is not suitable for farrowing due to the presence of • • •
- A creep area.
- B grass wall fence.
- C farrowing rail.
- D wooden door.

2 A grade 8 pupil carried out an experiment on a soil sample from the garden to determine the drainage and retention of water. 100 cm³ of water was poured on the soil and the result obtained.

![Diagram of soil sample experiment]

Agriculture Science/501/1/2014
Calculate the water of drainage and retention of the soil sample above.

<table>
<thead>
<tr>
<th>Drainage</th>
<th>Retention</th>
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<tbody>
<tr>
<td>A 20cm³</td>
<td>100cm³</td>
</tr>
<tr>
<td>B 100cm³</td>
<td>20cm³</td>
</tr>
<tr>
<td>C 80cm³</td>
<td>20cm³</td>
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<tr>
<td>D 20cm³</td>
<td>80cm³</td>
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</tbody>
</table>

3 Study the diagrams of tractor drawn implements.

Which implement is used for harrowing?

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<td>C</td>
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</table>
4 A grade eight pupil put a soil sample from the school garden into a measuring cylinder and added some water. The pupil shook the cylinder before leaving the solid particles to settle. The following was the result of the activity.

![Diagram of soil layers in a cylinder]

Which arrangement shows the correct order of particle settlement in the cylinder above?

<table>
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<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Clay</td>
<td>Silt</td>
<td>Sand</td>
<td>Gravel</td>
</tr>
<tr>
<td>B</td>
<td>Humus</td>
<td>Clay</td>
<td>Sand</td>
<td>Gravel</td>
</tr>
<tr>
<td>C</td>
<td>Silt</td>
<td>Humus</td>
<td>Sand</td>
<td>Gravel</td>
</tr>
<tr>
<td>D</td>
<td>Humus</td>
<td>Silt</td>
<td>Sand</td>
<td>Gravel</td>
</tr>
</tbody>
</table>

5 Which statement below gives the correct name of the practice and its purpose?

![Diagram of animal face with numbers]

<table>
<thead>
<tr>
<th>Practice</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Branding</td>
<td>Vaccination</td>
</tr>
<tr>
<td>B Ear tagging</td>
<td>Identification</td>
</tr>
<tr>
<td>C Tattooing</td>
<td>Vaccination</td>
</tr>
<tr>
<td>D Ear notching</td>
<td>Identification</td>
</tr>
</tbody>
</table>

Agriculture Science/501/1/2014
6 A farmer planned a rotation and grew vegetables as follows:

1 Green pepper 2 Tomatoes 3 Green beans 4 Cabbage

The yields of vegetables were as follows:

<table>
<thead>
<tr>
<th>Vegetable</th>
<th>Yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green pepper</td>
<td>High</td>
</tr>
<tr>
<td>Tomatoes</td>
<td>Low</td>
</tr>
<tr>
<td>Green beans</td>
<td>High</td>
</tr>
<tr>
<td>Cabbage</td>
<td>High</td>
</tr>
</tbody>
</table>

The farmer asked a grade nine pupil for advice on what could have led to the low yield in tomatoes. What could have been the pupil’s advice?

A Use of poor variety of tomato  
B Infected seedlings at transplanting  
C Disease and pests from previous crop  
D Competition from weeds

7 Study the table below showing some characteristics of two types of soil

<table>
<thead>
<tr>
<th>Soil 1</th>
<th>Soil 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Well drained</td>
<td>Relatively well drained</td>
</tr>
<tr>
<td>Relatively low nutrient content</td>
<td>Relatively high nutrient content</td>
</tr>
<tr>
<td>Acidic</td>
<td>Slightly acidic</td>
</tr>
<tr>
<td>Poor water retention</td>
<td>Good water retention</td>
</tr>
</tbody>
</table>

Which of the following gives the correct identity of the two types of soil?

<table>
<thead>
<tr>
<th>Soil 1</th>
<th>Soil 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Loam</td>
<td>Sand</td>
</tr>
<tr>
<td>B Clay</td>
<td>Loam</td>
</tr>
<tr>
<td>C Sand</td>
<td>Clay</td>
</tr>
<tr>
<td>D Sand</td>
<td>Loam</td>
</tr>
</tbody>
</table>
8. How can a farmer improve soil structure?
   A. Practising mixed farming
   B. Applying artificial fertilizer
   C. Practicing monocropping
   D. Applying organic manure

9. Which of the following lists shows signs of heat in a sow?
   A. Restlessness and swollen uterus
   B. Watery eyes and swollen vulva
   C. Swollen vulva and restlessness
   D. Watery eyes and loss of appetite

10. During an Agricultural show, all cattle passed through the spray race and dip tank before being taken to their respective paddocks. This was done in order to
    A. control ectoparasites.
    B. keep them cool.
    C. control endoparasites.
    D. keep the animals clean.

11. Study the diagram of the reproductive system of a bird.

   ![Diagram of a bird's reproductive system]

   What takes place at 1, 2, 3, and 4
   1. Shell is formed
   2. Albumen is added
   3. Chalaza is formed
   4. Ova are formed

   A. Shell is formed
   B. Chalaza is formed
   C. Ova is formed
   D. Albumen is added

12. A commercial farmer can find a market for the farm produce by
    A. taking the products to open markets.
    B. using different kinds of adverts.
    C. advertising on television only.
    D. taking the products door to door.
13 Why should a farmer take farming as a business?
   A It raises standard of living
   B To export farm produce
   C It is profitable
   D To achieve food security

14 The recommended proportion of sand: aggregates: cement for concrete mixtures for farm buildings is • • •
   A 1:3:6
   B 4:2:1
   C 2:1:4
   D 6:3:1

15 Which farm implement below is correctly matched with its function?

<table>
<thead>
<tr>
<th>Implement</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Subsoiler</td>
<td>Ripping the land</td>
</tr>
<tr>
<td>B Harrow</td>
<td>Levelling the land</td>
</tr>
<tr>
<td>C Ridger</td>
<td>Loosening the land</td>
</tr>
<tr>
<td>D Cultivator</td>
<td>Wooding the field</td>
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</tbody>
</table>

16 Which one of the features below is NOT suitable for storage of power implements?
   A Concrete floor
   B Dust free area
   C Direct sunlight
   D Good shade

17 Which one of the following conditions below should be avoided in the storage facility for grains?
   A Hygiene
   B Cooling
   C Humidity
   D Ventilation

18 A pig had the following characteristics:
   - slow in maturing
   - good converter of feed
   - heavy milkers
   - dished face
   - long straight ears

Which pig breed is described by the characteristics above?
   A Poland-China
   B Large white
   C Wessex saddle back
   D Landrace
19. What is the right temperature for chicks in a brooder house?
   A. 38°C
   B. 40°C
   C. 45°C
   D. 50°C

20. Study the list below showing some characteristics of natural pasture and improved pasture.
   1. Mixed grass and legumes
   2. Usually overgrazed
   3. Consists mainly of grass
   4. Accumulation of parasites
   5. Quite nutritious
   6. Grass is palatable

   Which characteristics are for natural pasture?
   A. 1, 2, 3
   B. 2, 3, 4
   C. 3, 4, 5
   D. 6, 5, 1

21. Why is it NOT advisable for a heifer to be serviced when it is too small?
   A. Calf will be calved with an infection
   B. Heifer will not produce colostrum
   C. Calf will not be fully formed
   D. Heifer may have difficulties during calving

22. What is the gestation period of a cow?
   A. 115 days
   B. 150 days
   C. 270 days
   D. 300 days

23. A grade nine pupil doing Agricultural Science is asked by a farmer on how to plant correctly in order to maintain soil fertility. What advice should the pupil give to the farmer?
   A. Crop rotating
   B. Broadcasting
   C. Deep planting
   D. Potholing

24. Which of the following is applied as a top dressing fertilizer?
   A. Compound D
   B. Ammonium Nitrate
   C. Compound R
   D. Single super phosphate
25 Which of the following does NOT affect the development of Agriculture in Zambia?
   A Population
   B Technology
   C Gender
   D Land

26 Which of the following factors do NOT cause soil erosion?
   A Organic matter, heavy rain and terraces
   B Vegetative cover, terraces and organic matter
   C Contour ridges, terraces and heavy rain
   D Vegetative cover, heavy rain and contour ridges

27 One advantage of vegetative propagation over seed is that • • •
   A the crop is not attacked by pests.
   B it preserves the qualities of the crop.
   C the crop gives a higher yield.
   D it makes plants resistant to drought.

28 How does rapid population growth affect the marketing of agricultural products?
   A Demand is reduced
   B Demand is increased
   C Cost of products reduces
   D Cost of products remains the same

29 How has the credit system in Zambia NOT fully benefitted the subsistence farmer?
   A Subsistence farmers do not know about it
   B Subsistence farmers do not have bank accounts
   C Banks deal with long terms only
   D Banks require security from farmers

30 Which precaution should NOT be followed when a farmer is applying chemicals to crops?
   A Always spray against wind.
   B Mix the chemicals in correct proportion
   C Keep a record after every spray
   D Avoid eating or smoking during spraying

31 Grade eight pupils were asked to choose a suitable site for their vegetable production. Which factors did they consider for the activity?

They chose an area which • • •
   A had loam soil and near the market.
   B was under the shade and near water.
   C was steep and near the market.
   D had clay soil and near water.
32 What is the importance of including a legume in a vegetable rotation? It • • •
A increases the nitrogen content in the soil.
B keeps away weeds from the vegetables.
C prevents pests from attacking vegetables.
D highly reduced soil erosion.

33 Which method can be used to control insect pests in a crop without the danger of causing pollution?
A Practicing monocropping
B Spraying with pesticides
C Practising crop rotation
D Spraying with herbicides

34 What is the recommended moisture content of maize for storage?
A 8%
B 10%
C 12.5%
D 15.5%

35 Which one of the following practices does NOT conserve soil?
A Crop rotation
B Fallowing
C Mulching
D Ploughing

36 Why is organic manure important in conservation farming? It • • •
A does not pollute the soil.
B takes a short time to break down.
C contains the seeds of weeds.
D increases the yield of crops.

37 Why is it NOT always advisable to grow trees along the river banks?
A Some types of trees can lower the water levels
B They spread diseases and harbour pests
C They prevent deposition of soil in the river by erosion
D They drop leaves and flowers and pollute the water

38 Which of the following statements is correct about soil texture?
A The arrangement of very small quartz particles
B Soil type whose sizes are in diameter 0.02mm – 2.00mm
C The reactive proportion of various sizes of soil
D It is physical appearance of soil
39  What role do trets play in increasing the soil fertility?
   A  They provide organic matter when they have decayed
   B  Their roots hold soil together and prevent soil erosion
   C  They all help in fixing nitrogen in the soil
   D  They keep away diseases and pests.

40  How does the farmer know that groundnuts are ready for harvesting?
   A  Leaves develop brown spots
   B  The flowers remain yellow
   C  Stems develop dark patches
   D  Veins inside the pods darken