

**G9 ECZ
AGRICULTURAL
SCIENCE
2014 SPECIMEN
PAPER 1
SOLUTIONS**

Grade 9 ECZ Agricultural Science 2014 Specimen Paper 1 (501/1)

40 compulsory multiple-choice questions covering the full Grade 9 Agricultural Science syllabus

all number of factual questions (livestock husbandry norms, building-material ratios) are answered with the standard textbook figure and flagged

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;

COMPONENT	PAPER TYPE	NO. OF QUESTIONS	MARKS	WEIGHTING OF MARKS	TIME ALLOWANCE
501/1	Multiple Choice	40	40	29%	1 hour
501/2	Theory	8	80	57%	2 hours
501/3	Project	1	20	14%	2 hours



EXAMINATIONS COUNCIL OF ZAMBIA
JUNIOR SECONDARY SCHOOL LEAVING EXAMINATION (GRADE 9) – 2014
AGRICULTURAL SCIENCE 501/1
PAPER 1
(SPECIMEN)

(INTERNAL AND EXTERANL 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
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- 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.



**EXAMINATIONS COUNCIL OF ZAMBIA
JUNIOR SECONDARY SCHOOL LEAVING EXAMINATION (GRADE 9) 2014**

AGRICULTURAL SCIENCE 501/1

**ANSWER SHEET
(SPECIMEN)**

CANDIDATE'S NAME _____

EXAMINATION NUMBER _____

SCHOOL/CENTRE NAME _____

CODE _____

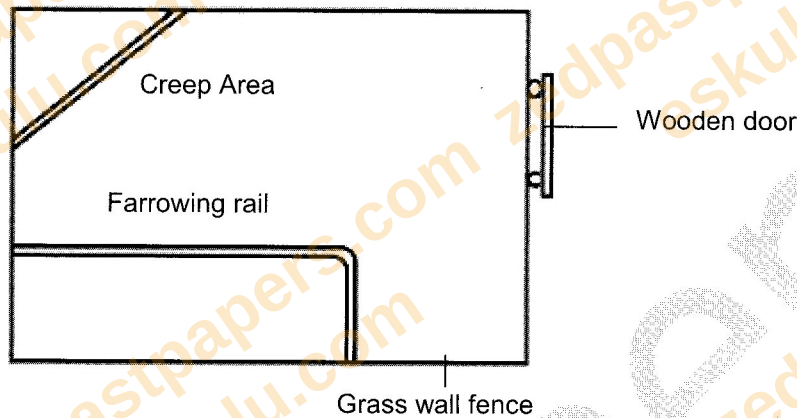
1	A	B	C	D
2	A	B	C	D
3	A	B	C	D
4	A	B	C	D
5	A	B	C	D
6	A	B	C	D
7	A	B	C	D
8	A	B	C	D
9	A	B	C	D
10	A	B	C	D
11	A	B	C	D
12	A	B	C	D
13	A	B	C	D
14	A	B	C	D
15	A	B	C	D
16	A	B	C	D
17	A	B	C	D
18	A	B	C	D
19	A	B	C	D
20	A	B	C	D

21	A	B	C	D
22	A	B	C	D
23	A	B	C	D
24	A	B	C	D
25	A	B	C	D
26	A	B	C	D
27	A	B	C	D
28	A	B	C	D
29	A	B	C	D
30	A	B	C	D
31	A	B	C	D
32	A	B	C	D
33	A	B	C	D
34	A	B	C	D
35	A	B	C	D
36	A	B	C	D
37	A	B	C	D
38	A	B	C	D
39	A	B	C	D
40	A	B	C	D

SECTION A

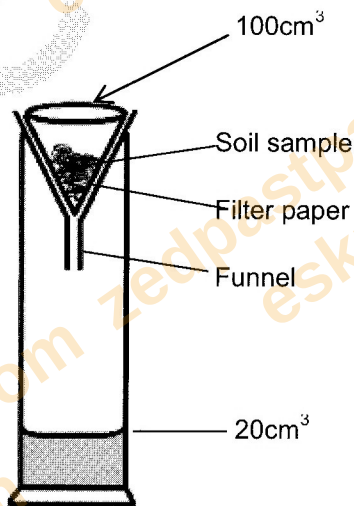
Answer **all** questions.

- 1 A farmer constructed the following structure for a sow.



The diagram above is not suitable for farrowing due to the presence of • • •

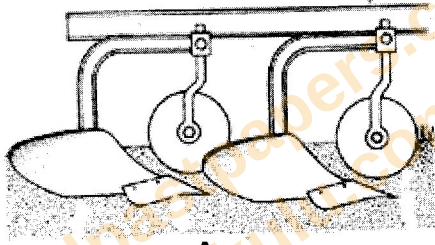
- A creep area.
 - B grass wall fence.
 - C farrowing rail.
 - D wooden door.
- 2 A grade 8 pupil carried out an experiment on a soil sample from the garden to determine the drainage and retention of water. 100cm³ of water was poured on the soil and the result obtained.



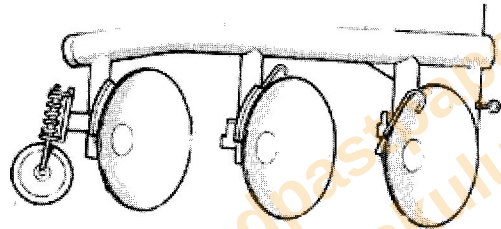
Calculate the water of drainage and retention of the soil sample above.

	Drainage	Retention
A	20cm ³	100cm ³
B	100cm ³	20cm ³
C	80cm ³	20cm ³
D	20cm ³	80cm ³

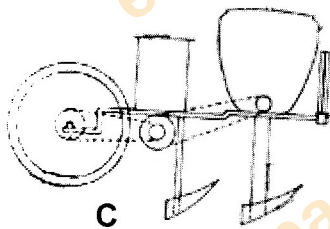
3 Study the diagrams of tractor drawn implements.



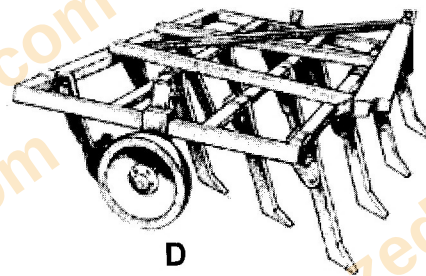
A



B



C

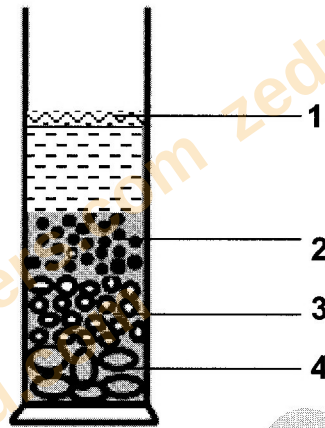


D

Which implement is used for harrowing?

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

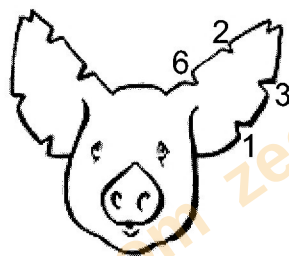
- 4 A grade eight pupil put a soil sample from the school garden into a measuring cylinder and added some water. The pupil shook the cylinder before leaving the solid particles to settle. The following was the result of the activity.



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

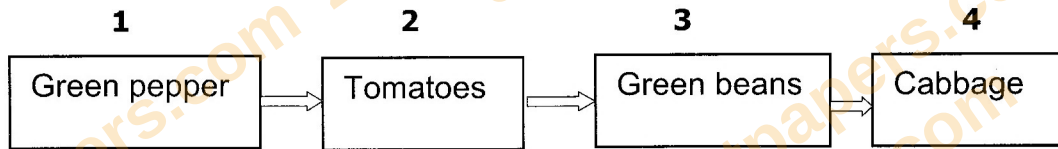
	1	2	3	4
A	Clay	Silt	Sand	Gravel
B	Humus	Clay	Sand	Gravel
C	Silt	Humus	Sand	Gravel
D	Humus	Silt	Sand	Gravel

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



Practice	Purpose
A Branding	Vaccination
B Ear tagging	Identification
C Tattooing	Vaccination
D Ear notching	Identification

- 6 A farmer planned a rotation and grew vegetables as follows:



The yields of vegetables were as follows:

Vegetable	Yield
Green pepper	High
Tomatoes	Low
Green beans	High
Cabbage	High

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?

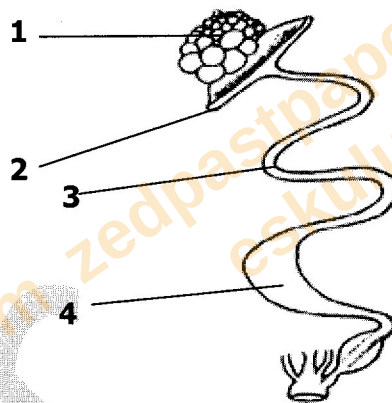
- A** Use of poor variety of tomato
B Infected seedlings at transplanting
C Disease and pests from previous crop
D Competition from weeds
- 7 Study the table below showing some characteristics of two types of soil

Soil 1	Soil 2
Well drained	Relatively well drained
Relatively low nutrient content	Relatively high nutrient content
Acidic	Slightly acidic
Poor water retention	Good water retention

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

- | | |
|---------------|---------------|
| Soil 1 | Soil 2 |
| A Loam | Sand |
| B Clay | Loam |
| C Sand | Clay |
| D Sand | Loam |

- 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.



What takes place at **1**, **2**, **3** and **4**

- | | | | |
|----------------------------|-------------------|-------------------|-------------------|
| 1 | 2 | 3 | 4 |
| A Shell is formed | Albumen is added | Chalaza is formed | Ova are formed |
| B Chalaza is formed | Shell is added | Ova is formed | Albumen is added |
| C Ova is formed | Chalaza is formed | Albumen is added | Shell is added |
| D Albumen is added | Ova is formed | Shell is added | Chalaza is formed |

- 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?

Implement	Function
A Subsoiler	Ripping the land
B Harrow	Levelling the land
C Ridger	Loosening the land
D Cultivator	Weeding the field

- 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 trees 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

Question 1. A farmer constructed a farrowing structure for a sow with a creep area, a farrowing rail, a grass wall fence and a wooden door. The diagram is not suitable for farrowing due to the presence of ... (A) creep area (B) grass wall fence (C) farrowing rail (D) wooden door

Answer: B -- the grass wall fence. A farrowing pen needs solid, secure walls to protect piglets from drafts, predators and crushing; a grass fence offers none of this protection.

Question 2. A grade 8 pupil poured 100cm³ of water onto a soil sample held in a funnel lined with filter paper, standing over a measuring cylinder, and collected 20cm³ in the cylinder below. Calculate the drainage and retention of the soil sample. Drainage / Retention: (A) 20cm³ / 100cm³ (B) 100cm³ / 20cm³ (C) 80cm³ / 20cm³ (D) 20cm³ / 80cm³

Answer: D -- Drainage (water that passed through the soil and was collected) = 20cm³; Retention (water held back by the soil) = 100cm³ - 20cm³ = 80cm³.

Question 3. Study the diagrams of four tractor-drawn implements (A: a two-bottom mouldboard plough; B: a disc harrow with three large discs; C: a single-furrow ridger/plough with a small wheel; D: a multi-tined cultivator/harrow frame). Which implement is used for harrowing?

Answer: B (implement 2) -- the disc harrow, whose rotating discs break up soil clods and level the seedbed after ploughing.

Question 4. A grade 8 pupil put a soil sample from the school garden into a measuring cylinder with water, shook it, and left the particles to settle into 4 layers (labelled 1 at the top to 4 at the bottom). Which arrangement shows the correct order of particle settlement? (A) 1-Clay,2-Silt,3-Sand,4-Gravel (B) 1-Humus,2-Clay,3-Sand,4-Gravel (C) 1-Silt,2-Humus,3-Sand,4-Gravel (D) 1-Humus,2-Silt,3-Sand,4-Gravel

Answer: D -- particles settle by decreasing lightness/increasing density from top to bottom: Humus (lightest, floats/settles last) at 1, then Silt at 2, Sand at 3, and Gravel (heaviest) at 4.

Question 5. Study the diagram of a pig's ear with numbered notches (6, 2, 3, 1). Which statement below gives the correct name of the practice and its purpose? Practice / Purpose: (A) Branding / Vaccination (B) Ear tagging / Identification (C) Tattooing / Vaccination (D) Ear notching / Identification

Answer: D -- Ear notching / Identification. The numbered notches cut into the ear follow a standard code used to permanently identify individual pigs.

Question 6. A farmer rotated vegetables: (1) Green pepper (high yield) -> (2) Tomatoes (low yield) -> (3) Green beans (high yield) -> (4) Cabbage (high yield). What could have led to the low yield in tomatoes? (A) Use of poor variety of tomato (B) Infected seedlings at transplanting (C) Disease and pests from previous crop (D) Competition from weeds

Answer: C -- Disease and pests from previous crop. Green pepper and tomato both belong to the same plant family (Solanaceae), so pests and diseases that built up under the green pepper crop carried over and attacked the following tomato crop.

Question 7. Study the table of characteristics for two soils: Soil 1 (well drained, relatively low nutrient content, acidic, poor water retention) and Soil 2 (relatively well drained, relatively high nutrient content, slightly acidic, good water retention). Which of the following gives the correct identity of the two types of soil? Soil 1 / Soil 2: (A) Loam / Sand (B) Clay / Loam (C) Sand / Clay (D) Sand / Loam

Answer: D -- Soil 1 is Sand (well drained, low nutrients, poor retention, more acidic) and Soil 2 is Loam (balanced, fertile, good retention).

Question 8. How can a farmer improve soil structure? (A) Practising mixed farming (B) Applying artificial fertilizer (C) Practicing monocropping (D) Applying organic manure

Answer: D -- Applying organic manure, which adds humus and improves aggregation/structure of the soil (artificial fertilizer feeds plants but does not improve soil structure).

Question 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

Answer: C -- Swollen vulva and restlessness, both classic signs that a sow is on heat.

Question 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

Answer: A -- control ectoparasites (dipping/spraying kills external parasites such as ticks living on the animal's skin/coat).

Question 11. Study the diagram of the reproductive system of a bird (1 at the ovary with a cluster of ova, 2 and 3 close together further along the oviduct, and 4 further down near the vent). What takes place at 1, 2, 3 and 4? 1/2/3/4: (A) Shell formed/Albumen added/Chalaza formed/Ova formed (B) Chalaza formed/Shell added/Ova formed/Albumen added (C) Ova formed/Chalaza formed/Albumen added/Shell added (D) Albumen added/Ova formed/Shell added/Chalaza formed

Answer: C -- Ova are formed at the ovary (1); the chalaza forms as the yolk passes the infundibulum (2); albumen (egg white) is added in the magnum (3); and the shell is added in the uterus/shell gland (4) -- the correct order the egg forms in as it travels down the oviduct.

Question 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

Answer: B -- using different kinds of adverts, which reaches the widest range of potential buyers rather than relying on a single method.

Question 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

Answer: C -- It is profitable, the defining reason any activity is run as a business.

Question 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

Answer: A -- 1:3:6 (judgment call: this is the standard nominal general-purpose concrete mix ratio taught for farm building work).

Question 15. Which farm implement below is correctly matched with its function? Implement / Function: (A) Subsoiler / Ripping the land (B) Harrow / Levelling the land (C) Ridger / Loosening the land (D) Cultivator / Weeding the field

Answer: A -- Subsoiler / Ripping the land. A subsoiler is specifically designed to rip/break up compacted soil layers deep below the surface.

Question 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

Answer: C -- Direct sunlight, which causes rusting of metal parts and deterioration of rubber/plastic components.

Question 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

Answer: C -- Humidity, which encourages mould growth, sprouting and pest infestation in stored grain.

Question 18. A pig had the following characteristics: slow in maturing, good converter of feed, heavy milker, dished face, long straight ears. Which pig breed is described? (A) Poland-China (B) Large white (C) Wessex saddle back (D) Landrace

Answer: D -- Landrace, a breed known for good mothering/milking ability and long, drooping (lop) ears.

Question 19. What is the right temperature for chicks in a brooder house? (A) 38 degC (B) 40 degC (C) 45 degC (D) 50 degC

Answer: B -- 40 degC (judgment call: brooder temperature is kept close to a hen's own body warmth for newly hatched chicks, then reduced gradually week by week).

Question 20. Study the list: 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

Answer: B -- 2, 3, 4. Natural (unimproved) pasture consists mainly of grass, is usually overgrazed, and accumulates parasites from continuous uncontrolled grazing; mixed grass-and-legume, nutritious, palatable pasture (1, 5, 6) describes improved/managed pasture instead.

Question 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

Answer: D -- Heifer may have difficulties during calving, since a too-small/immature heifer's pelvis and body may not be developed enough for safe delivery.

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

Answer: C -- 270 days (approximately 9 months, the closest of the given options to a cow's true gestation of about 283 days).

Question 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

Answer: A -- Crop rotating, which prevents the depletion of specific soil nutrients that continuous planting of the same crop would cause.

Question 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

Answer: B -- Ammonium Nitrate, a nitrogen-rich fertilizer applied during crop growth (top dressing), unlike the basal Compound D/R and phosphate fertilizers applied at planting.

Question 25. Which of the following does NOT affect the development of Agriculture in Zambia? (A) Population (B) Technology (C) Gender (D) Land

Answer: C -- Gender is the odd one out; population, technology and land are all standard, direct factors affecting agricultural development.

Question 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

Answer: B -- Vegetative cover, terraces and organic matter are all soil-conservation measures/factors that reduce erosion; the other options each include 'heavy rain', which does cause erosion.

Question 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

Answer: B -- it preserves the qualities of the crop, since vegetatively propagated plants are genetically identical clones of the parent plant.

Question 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

Answer: B -- Demand is increased, as more people require more food and agricultural products.

Question 29. How has the credit system in Zambia NOT fully benefited 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

Answer: D -- Banks require security (collateral) from farmers, which most subsistence farmers lack, locking them out of accessing credit.

Question 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

Answer: A -- Always spray against wind is dangerous advice and should NOT be followed; a farmer should spray with the wind behind them (or in still conditions) to avoid chemical drift onto themselves.

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

Answer: A -- had loam soil (fertile, well-balanced) and was near the market (easy access for selling the produce).

Question 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

Answer: A -- increases the nitrogen content in the soil, since legumes fix atmospheric nitrogen through bacteria in their root nodules.

Question 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

Answer: C -- Practising crop rotation, a cultural (non-chemical) pest-control method that avoids the pollution risk of pesticide/herbicide sprays.

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

Answer: C -- 12.5%, close to the standard safe storage moisture level for maize grain.

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

Answer: D -- Ploughing (especially conventional/deep ploughing) loosens and exposes soil, increasing erosion risk, unlike rotation, fallowing and mulching which conserve soil.

Question 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

Answer: A -- it does not pollute the soil, unlike chemical fertilizers, making it well suited to environmentally-friendly conservation farming.

Question 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

Answer: A -- Some types of trees (e.g. eucalyptus) draw up large amounts of groundwater, which can lower the water level/table near the river.

Question 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 relative proportion of various sizes of soil (D) It is physical appearance of soil

Answer: C -- The relative proportion of various sizes of soil (sand, silt and clay particles), which is the standard definition of soil texture.

Question 39. What role do trees 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

Answer: A -- They provide organic matter when they have decayed (fallen leaves/litter break down into humus, enriching the soil); nitrogen fixing (option C) is only true of leguminous trees, not all trees.

Question 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

Answer: D -- Veins inside the pods darken, the standard sign checked by breaking open a sample pod to assess maturity.

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