BONDO SUB-COUNTY SECONDARY SCHOOLS
JOINT EVALUATION - 2015
443/1
AGRICULTURE
Paper 1
July/August - 2015
MARKING SCHEME

SECTION A (30 MARKS)

1. i) Provision of raw materials;
   ii) Provide a market for industrial good
   iii) Provides capital for starting industries; (2 x ½) = 1mk
   First 2 correct
2. i) Pathogens;
   ii) Parasites;
   iii) Pests;
   iv) Predators;
   v) Weeds (3 x ½ = 1 ½ mks)
   First 3 correct
3. i) Save time and money;
   ii) Makes it easy for sound plan e.g rotation programme;
   iii) Soil conservation programme can be carried out easily;
   iv) Easy supervision of farm;
   v) Facilitates farm mechanization; (2 x ½ = 1mk)
   First 2 correct
4. i) Crop to be planted/rooting system;
   ii) Implements used;
   iii) Type of soil;
   iv) Soil moisture content;
   v) Presence of certain types of weeds e.g couch grass;
   vi) Source of power; (4 x ½ = 2mks)
   First 4 correct
5. Mixed cropping: is the growing of different types of crops on the same piece of land at the same time but on different plots while intercropping is the growing of different types of crops on the same piece of land at the same time but in alternate rows or totally, mixed in the available space; (2mks)
   Marks as whole ✓✓
6. i) Faster establishment after planting;
   ii) Uniform growth after planting;
   iii) Enables farmers to select quality planting materials; (2 x ½ = 1mk)
   First 2 correct
7. i) To facilitate easy harvesting
   ii) Helps to control soil borne pests and diseases;
   iii) Facilitates penetration of light;
   iv) To avoid soiling of fruits/clean fruits are harvested;
   v) Facilitates penetration of chemicals (4 x ½ = 2mks)
   First 4 correct
8. i) Seeds
   ii) Fertilizer
   iii) Pesticides
   iv) Labour
   v) Fuel (4 x ½ = 2mks)

First 4 correct

9. i) To produce a tree that will flower and fruit earlier;
   ii) To introduce a root stock that is disease or nematode resistant;
   iii) To change the size of the resultant plant by dwarfing or increasing growth;
   iv) To adapt the plant to a wider range of soil and environmental conditions;
   (3 x ½ = 1 ½ mks)
   First 3 correct

10. i) Providing agricultural credit to farmers at reasonable interest rates with a grace period;
   ii) Providing technical services to the farmers to ensure the best utilization of the borrowed capital.
   iii) Ensure repayment of the loans by farmers; (2 x 1 = 2mks)
   First 2 correct

11. i) Mosaic/leaf chlorosis;
   ii) Mottling;
   iii) Leaf curling;
   iv) Stunting/ resetting/ short internodes;
   v) Malformation/ distortion of parts; (2 x ½ = 1mk)
   First 2 correct

12. i) High yielding;
   ii) High quality products;
   iii) Disease resistant;
   iv) Healthy/diseases free;
   v) Pest free;
   vi) Fast growing/ early maturing
   vii) Adaptable to environment (4 x ½ = 2mks)
   First 4 correct

13. i) Rooting system;
   ii) Growing points;
   iii) Stage of growth of plant;
   iv) Leaf angle;
   v) Height difference;
   vi) Leaf texture; (4 x ½ = 2mks)
   First 4 correct

14. i) By transporting it in containers (by vehicles / animals);
   ii) By piping;
   iii) By use of canals/channels/furrows; (2 x ½ = 1mk)
   First 2 correct

15. i) Season;
   ii) Crop grown/variety;
   iii) Ploughing date;
   iv) Inputs used;
   v) Pest controlled/method;
   vi) Disease controlled/method;
   vii) Weeds controlled /method;
   viii) Harvesting date
   ix) Yield
   x) Planting date
   xi) Plot/field number
   xii) Area of plot/land (4 x ½ = 2mks)
   First 4 correct

16. i) Steep slope;
   ii) Light soil/ sandy soil;
   iii) Large volumes of surface run off;

iv) High amount of rainfall;
v) Bareness of the land;
vi) High rainfall intensity;
vii) Strong winds;
viii) Long slopes;
ix) Shallow soil; (4 x ½ = 2mks)
First 4 correct

17. i) Has fine texture with no sliminess;
ii) Is greenish to yellow in colour;
iii) Has a PH of 4.2 or below;
iv) Has 5 to 9% lactic acid (4 x ½ = 2mks)
First 4 correct

18. If 100kg of CAN ⟶ 21kgN

$\therefore 200kg\ of\ CAN \rightarrow \frac{200 \times 21}{100}$ ✓

= 42kgN ✓ (2mks)

SECTION B (20 MARKS)

19. a) A – Double thorn/ Oxygonum sinuatum;
B – Datura / Thornapple / Datura stramonium
C – Wild oats / Avena fatua
D – Couch grass / Digitaria scalarum (4 x ½ = 2mks)
b) Poisonous (1mk)
c) Using herbicides eg Dalapow, MCPA or Glyphosphate (1mk)

20. a) Zigzag method (1mk)
b) i) Clear vegetation from sampling spot;
ii) Make a vertical cut 15 – 20cm deep for crop land / 5cm in pasture land;
iii) Put the soil in clean polythene bag using different parts of the field (15 – 20 spots;
iv) Repeat the above steps in different parts of the field;
v) Mix the soil from different spots thoroughly and dry it
vi) Take a sub-sample from the mixture for testing in the laboratory
(4 x 1= 4mks)
c) i) Avoid any contaminations with the soil e.g ash from cigarettes;
ii) Avoid sampling soils from unusual areas such as ant-hills, manure heaps;
iii) Avoid mixing top soil with subsoil; (2 x ½ = 1mk)
First 2 correct

21. a) 1 – French drain (½ mk)
2 – Cambered bed (½ mk)
b) X – soil (½ mk)
Y – Stones/ Pebbles (½ mk)
c) i) Use of pesticides
ii) Use of inorganic fertilizers
iii) Improper disposal of farm chemicals ;
iv) Dumping of farm waste/slurry/polythene
v) Sewage / latrines near water ways
vi) Soil erosion; (2 x 1 = 2mks)
First 2 correct

22. a) A – particulars/ Description; (½ mk)
B – Quantity of goods delivered; (½mk)
b) This document is written by the seller and always accompanies goods to be delivered to serve as evidence that goods have been physically delivered from the supplier to the buyer.
c) i) The date of delivery;

ii) The quantity and type of goods delivered;
iii) The name of the supplier and the buyer;
iv) The method of delivery
v) The person who delivers/reseives the goods
vi) Condition in which the goods are received;
vii) Delivery note serial number; (4 x ½ = 2mks) First 4 correct

23. a) Lifting of a seedling; (1mk)
b) i) Watering the nursery bed thoroughly before lifting;
ii) Lifting the seedling using a garden trowel/lifting the seedling with a ball of soil on the roots;
iii) Lifting the seedlings in the evening/on a cloudy day;
iv) Select only healthy and vigorously growing seedlings; (3 x 1 = 3mks) First 3 correct

24. a) i) Facilitate harvesting/picking; by capping to maintain a convenient height;
ii) Control cropping/ improve quality of product; reduce overbearing caused by excessive vegetation;
iii) Control of pests and diseases; remove infected and diseased parts of plant. Also destroy the microclimates which favour pests and disease development;
iv) Effective use of chemical sprays; by opening up the bush, there is economical and effective use of sprays.
v) Frame formation – to train crops to grow in the required shape and directions.
(5 x 2 = 10mks)
(Reason 1mk; Explain 1mk)

b) Use of;
i) Grass strip – these reduce the speed of run off water;
ii) Cover cropping – the crops cover the soil hence minimizing impact of rain drops.
iii) Mulching – this ensures good soil cover, reduces speed of runoff water and filters out soil on transit;
iv) Good cropping – reduces speed of run-off water hence minimizing erosion;
v) Strip cropping – reduces speed of run off water hence minimizing erosion;
vi) Afforestation/reafforestation – this ensures good soil cover, roots hold soil particles together hence minimizing erosion;
vii) Agro-forestry-in this system there is improving root system which facilitates infiltration of water;
(5 x 1 = 5mks)

c) i) Insurance against losses;
ii) Contracting / hedging against price fluctuation;
iii) Diversification of enterprises/ variety of enterprises;
iv) Input rationing in the production process;
v) Selecting enterprises that have done well in the area;
vi) Engaging in enterprises which can be stopped or started as conditions change / flexibility
vii) Adopting modern methods of production eg irrigation, vaccination;
viii) Maintain liquidity for use in case of any eventuality.
ix) Use more certain husbandry practices
x) Inventory marketing/ strategic farming i.e keeping farm products and selling at a time when prices are favourable; (5 x 1 = 5mks) First 5 correct

25. a) i) Nitrogen fixing ability – The trees should be preferably legumes. They should be capable of fixing Nitrogen into the soil for use by other crops;
ii) Fast growing ability – trees chosen should be fast growing and early maturing so that they can be put into other uses – thus should have a high biomass production e.g fuel wood

iii) Multipurpose nature – the chosen trees should be able to meet other uses such as provision of fuel woods, fodder, poles and timber.

iv) By – product production – The best agroforestry tree species should be able to produce economic products and by-products which can be used or sold for income e.g those producing edible leaves, fruits, medicinal products, poles and fodder.

v) Deep rooted with a narrow root zone – when agro-forestry trees have deep roots, they acquire their nutrients from lower soil horizons where most plant roots do not reach-hence minimal competition for nutrients;

vi) Non-competitive ability with main crop- a good agroforestry tree species should not compete with the main crops for light and nutrients unnecessarily.

vii) Nutritious and palatable – trees used for this purpose should be both nutritious and palatable as leaf fodder for livestock use.

viii) Easily coppiced – the trees species which will be able to regenerate after cutting back for pruning are preferred. (5 x 2 = 10mks)
(Characteristic – 1mk, explaination – 1mk)

b) i) Use of lethal temperature – These are too hot or too cold conditions which kill pests;

ii) Proper drying of produce – drying of grains makes them too hard for pests to penetrate;

iii) Flooding – drowns underground pests eg moles and cutworms;

iv) Suffocation – pumping carbon(IV) oxide into hermetic Cyprus bins deprives pests of oxygen;

v) Physical destruction – done through trapping, hand picking and killing them.

vi) Use of scare crows/ devices – for scaring large animals and birds from crop fields;

vii) Use of physical barriers – Barriers such as trenches fences, rat quards prevent pests from getting into crop fields or stores.

viii) Use of electromagnetic radiation – electromagnetic radiations are used to kill insect pests through deactivation of enzymes (5 x 2 = 10mks)
(Method – 1mk, Explanation – 1mk)

26. a) i) It releases valuable plant nutrients into the soil;

ii) It reduces toxicity of plant poisons from agrochemicals;

iii) It provides food and shelter to useful soil micro-organisms;

iv) It improves soil structure by binding soil particles together;

v) It improves the drainage/ aeration of the soil;

vi) It buffers soil PH;

vii) It moderates soil temperature due to its dark colours;

viii) It improves the water holding capacity (5 x 1 = 5mks)
First 5 correct

b) Maize production;

i) Land preparation

- Land should be prepared early/ during the dry season; to allow enough time for stubble to rot;
- Ploughing is done using disc plough or mouldboard plough for large scale/ simple hand tools eg jembes/ fork jembe for small scale;
- Harrowing is done to a moderate tilth; (3 x 1 = 3mks)

ii) Planting

- Should be done at the onset of rains
- Depth of planting is 2.5cm – 10cm
- Apply phosphatic fertilizer / well rotten manure in the hole
- Place one or two seeds per hole
- The spacing is 20cm – 30cm by 75cm – 90cm;
- Planting is done by hand in small scale farms while in large farms, planters are used. (3 x 1 = 3mks)

(Any 3 correct)

c) i) **BONDO FARM BALANCE SHEET AS AT DECEMBER, 2012**

LIABILITIES			**ASSETS**		
	Ksh.	Cts.		Ksh.	Cts
Current Liabilities			Current Assets		
Debts payable to co-operative society	10,000	00	Money in cashbox	2,000	00
Salaries	9,500	00	Debt receivable from new KCC	10,000	00
Total Current Liabilities	19,500	00	Stored cattle spray	2,000	00
Long Term Liabilities			Poultry	35,000	00
Bank loan	1,000,000	00	Goats	19,000	00
			Cattle	125,000	00
Total Liabilities	1,019,500	00	Stored cattle feed	4,000	00
			Total current Assets	197,000	00
Net worth	57,500	00	Fixed Assets		
			Coffee trees	95,000	00
			Equipment	40,000	00
			Farm buildings	145,000	00
			Land valued	600,000	00
			Total Fixed Assets	880,000	00
			Total Assets	1,077,000	00
TOTAL	1,077,000	00	TOTAL	1,077,000	00

(7mks)

ii) Bondo farm is solvent (1mk)

iii) The value of assets is more than that of the liabilities hence the farm can meet all her liabilities and still have net capital (1mk)

NAME:…….. INDEX NO……..

SCHOOL:…… CANDIDATE'S SIGN ……..

DATE ……..

443/2
AGRICULTURE
Paper 2
July/August - 2015
Time: 2 Hours

BONDO SUB-COUNTY SECONDARY SCHOOLS JOINT EVALUATION - 2015

Kenya Certificate of Secondary Education (K.C.S.E)

443/2
AGRICULTURE
Paper 2
July/August - 2015
Time: 2 Hours

INSTRUCTIONS TO CANDIDATES

1. Write your name and index number in the spaces provided above
2. Sign and write the date of examination in the spaces provided above.
3. This paper consists of three sections: A, B and C
4. Answer all the questions in section A and B and any two questions from section C
5. Answers should be written in the spaces provided.

For Examiner's Use Only

Section	Question	Maximum Score	Candidate's Score
A	1 – 19	30	
B	20 – 23	20	
C		20	
		20	
	Total Score	**90**	

This paper consists of 12 printed pages. Candidates should check the question paper to ensure that all pages are printed as indicated and no questions are missing.

SECTION A (30 MARKS)
Answer ALL the questions in this section in the spaces provided.

1. Apart from medicants give **two** other forms of feed additives. (1mk)

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2. State **four** factors that may lead to dipwash being exhausted or weakened while in the diptank. (2mks)

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3. Distinguish between dominant and recessive gene in animal breeding (2mks)

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4. Give **four** ways of administering vaccine in livestock. (2mks)

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5. State **two** reasons for curing timber for construction purposes. (2mks)

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6. Give **four** reasons for crossbreeding in beef production (2mks)

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7. List **four** tools/equipments used in harvesting honey (2mks)

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8. Why is drenching alone NOT an effective method of controlling internal parasites in Livestock? (1mk)

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9. List **Two** roles of polyvinyl chloride (PVC) sheet in the construction of foundation (1mk)

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10. Give any **three** signs of broodiness in poultry (1 ½ mks)

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11. State **two** reasons for feeding a lamb on colostrums (1mk)

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12. Give a reason for starving poultry for 12 hours before slaughter. (1mk)

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13. List **four** routes through which pathogens can enter the body of an animal. (2mks)

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14. Why are droppers used in fencing work? (1mk)

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15. State **four** factors considered when siting a farm structure (2mks)

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16. State **four** factors that affect the digestibility in livestock nutrition (5mks)

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17. List **four** advantages of rearing chicken in a battery cage (2mks)

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18. State **four** precautionary measures a farmer should undertake when spraying a wash made from an acaricide. (2mks)

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19. Name any **one** tickborne disease affecting livestock. (½ mk)

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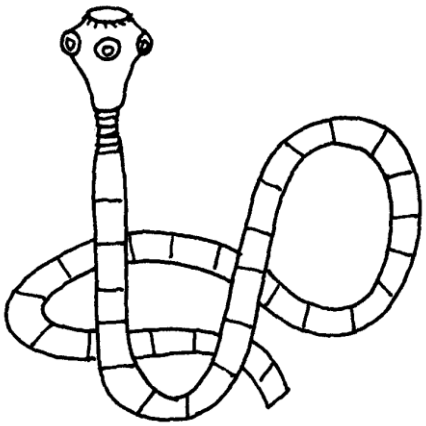
SECTION B (20 MARKS)

20.



A

The diagram A above shows a livestock parasite.

i) Identify the parasite (½ mk)

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ii) Name **two** species of livestock the parasite infests (1mk)

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iii) How is the parasite passed from livestock to human beings? (1mk)

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iv) Give **two** forms in which the parasite is found in livestock (1mk)

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v) State **two** methods by which this parasite can be controlled. (2mks)

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21. a) If the maize meal contains 6% Digestible Crude Protein (DCP) and Fish contains 64% DCP, calculate the amount of each feed stuff in kilogrammes, required to prepare 200kg of chickmash containing 18% DCP (4mks)

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b) Name **two** other feed ingredients which should be added to the chickmash to make it a balanced feed. (1mk)

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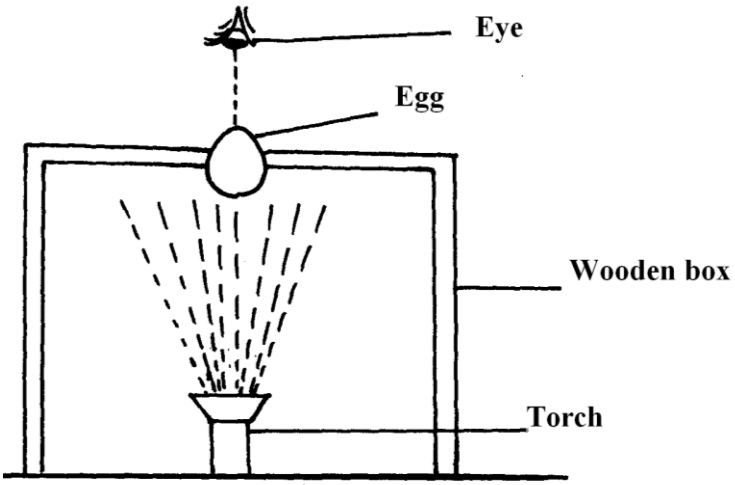
22. a) Below is an illustration of an activity carried out by a poultry farmer keeping layers



i) Identify the activity carried out using the set up. (½ mk)

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ii) State **four** faults in the eggs that can be detected by using this set up. (2mks)

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b) How can a farmer improve the following.

i) hardness of egg shells (1mk)

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ii) yellowness of the egg yolk? (1mk)

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23. The diagram below illustrates the general shape of a cattle breed. Study it carefully and answer the questions that follow.

a) Identify the type of breed illustrated by the above shape (½ mk)

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b) Give example of a breed in (a) above (½ mk)

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c) State **four** physical characteristics of the type of breed identified in (a) above (2mks)

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d) Name any **four** practices that a farmer can carry out on a crush (2mks)

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SECTION C (40 MARKS)

24. a) Describe **ten** signs of Trypanosomiasis (Nagana) diseases in livestock (10mks)

b) State the function of any seven parts of a zero grazing unit in dairy farming (7mks)

c) Outline **three** characteristics of clean milk (3mks)

25. a) Outline the procedure of handling a heifer when administering a liquid deworming drug to control tapeworm (5mks)

b) Describe the causes of stress in poultry management (10mks)

c) Describe the uses of fences on the farm (5mks)

26. a) Describe the use of various hand tools required for the construction of a wooden battery cage. (10mks)

b) Describe how the ignition of a tractor petrol engine work (10mks)

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