

**CHRISTIAN SOCIAL SERVICES COMMISSION (CSSC)
NORTHERN ZONE JOINT EXAMINATIONS SYNDICATE (NZJES)**



FORM SIX PRE-NATIONAL EXAMINATIONS 2023

134/1

AGRICULTURE 2

MARKING SCHEME

1. a) i) using artificial vagina: the sexual desire of the selected bull is aroused by allowing the bull to mount the cow. As it does so, the penis is diverted into artificial vagina with female on heat by the inseminator.

ii) by using breeder bag; a rubber pouch placed over the penis of the male before service recovery of semen from the vagina of the female soon after natural mating.

iii). Electrical stimulation of ejaculation.

iv). by massage method.

1mark @ = Total 04 marks

b) i) *Rectal palpation*: involve an experienced person introducing their hand and arm into the rectum of the cow or heifer and physically feeling the heifer. A skilled palpator can diagnose pregnancy as early as 40days of gestation and later.

ii) *Ultrasound examination of uterus*: the ultrasound probe is inserted into the rectum for examination of uterus. This has advantage as it determines the sex and age of fetus.

iii) *Use of blood test*: this is more recent advance in pregnancy diagnosis, pregnant cattle have high level of certain pregnancy specific protein in their blood stream. Therefore, the blood test is done to detect thus type of protein in the blood stream.

2mark @ = Total of 06 marks

2. (a) Three types of plant disease symptoms.

(i) Morphological Symptoms are the symptoms expressed due to the appearance of the pathogen structures or pores example rust, smut, mydecos.

- (ii) Systemic symptoms; - are the symptoms that spread evenly over the entire plant system
example-maize streaks mosaic wilt etc.
- (iii) Localized symptoms- these occur at the point of pathogen entry only. example blights, ports
anthracnose etc. (02 @ = **06Marks**)

(b)How the following eradicate the plant diseases

- (i) *Planting clean seeds* – prevent the entry and establishment of pathogen to an area.
- (ii) *Observe dead season*, break the plant disease cycle and destroy the survival of obligate
pathogen.
- (iii) *Burning crop residues* – destroy the diapausing pest, dormant mycelia, and hibernating pest
and pathogen hence eradicating pathogen inoculum
- (iv) *Rogueing the diseased plants*
- Restrict the spread of a particular diseases especially those vectors borne diseases
- (01 @ = **04Marks**)

3. (a)(i) Cassava mosaic disease (**01mark**)

(ii) Cassava mosaic virus (**01 mark**)

(iii) Means of spreading

- By vegetative propagation through cuttings
- By tobacco white flies

(*Bemisia tabaci*) (**02 marks**)

(iv)Four control measures

- Rogueing the diseased plant to restrict the spread
- use healthier cutting
- Growing resistant variety
- Spraying insecticides to reduce the population of white flies

(**04Marks**)

(b) Viral diseases are regarded as systemic because the symptoms of the viral diseases spread
evenly onto the entire plant system or bodies (**02 Marks**)

4. (a) Advantages of organic farming

i) Increase production of nutritious food

- ii) Increase nutrition diversity among people.
- iii) Encourage biological cycle within farming system involving soil flora, plants and animals
- iv) Maintain agriculture resource base
- v). Enhance environmental service provision.
- vi) Improve economic benefits to farmers sustainably.
- vii) Reduce risk
- viii) Maintain genetic diversity of agricultural system and its surroundings.
- ix) Avoid pollution that may result from agricultural techniques

Any five points (05 marks)

(b) (i) Limited use of industrial chemical: E.g., pesticides, inorganic fertilizer or industrial fertilizers

(ii) Afforestation: is the establishment of the Forest or stand of trees in an area where there was no previous tree cover

(iii) Use of green manure and when they decompose add soil fertility hence sustainable agriculture development.

(iv). Mulching cover the soil with mulch increase soil fertility.

(v). Agro forestry- Agro forestry or agrosilviculture. Is a land use managements system in which trees or shrubs is grown around or among crop or pasture land.

1 marks@, total = 05 marks

5. (a) (i) the animal house should be cleaned regularly

ii) Foot dip should be provided at the entrance of animal house

iii) The number of people entering the animal house should be minimized.

iv) Routine inoculations and vaccination should be carried out

v) Deworming should be carried out regularly.

vi) Prompt removal of sick and dead animal.

vii) Dead animals should be buried deep or burnt to avoid the spread of infection.

viii) Overcrowding should be avoided.

ix) Veterinary attempt should be sought regularly to reduce the chance of heavy losses through disease.

x) Proper ventilation.

xi) Procurement of stock from disease free farm.

xii) Regular supply of clean feed and water

- xiii) Avoid stocking together of animals of different ages and species
- xiv) Use different personnel for different animal houses
- xv) Disinfect livestock house regularly
- xvi) Change bedding materials /litter regularly
- xvii) regular cleaning of livestock equipment

Any five (05) points 1 marks @ = total of 05 marks.

b) Symptoms of coccidiosis

- i) Blood diarrhea
- ii) Fever
- iii) Loss of appetite
- iv) Wool braking
- v) Weight loss
- vi) The ileum, cecum, and upper colon are usually most infected and can become thickened and inflamed.
- vi) Thick white patches containing large numbers of Oocysts may develop in the small intestine.

Any three (03) points (03 marks)

Control measures

- i. Anticoccidial (coccidiacidal) drugs like amprolium and sulfur (corid),Chloletracycline Decoquinatate and sulphadimidine can be administered.
- ii. Infected animals should be moved and treated separately to prevent infection of other animals and make sure they are being treated effectively.
- iii. Good feeding practices and good management's (I.e sanitation)
- iv. Make sure neonatal receive colostrum.
- v. Young susceptible animal should be kept in clean and dry areas
- vi. Stress should be minimized like moisture.
- vii. Feeding and watering device should be kept clean and clear from fecal contamination.
- viii. Animal can be fed a ratio containing coccidiostats which slow down the shedding of coccidia into the environment.

Any two (02) points = total 02 marks

6. Measured adopted under agronomic pest control

- i. Crop rotation; to break the cycle of pest through starvation.
- ii. Early planting; to escape the period of pest outbreak

- iii. Burn crop residues; to eradicate the diapausing pest.
- iv. Use of completely decomposed manure; to prevent the spread of pest.
- v. Distraction of alternate host and volunteer plant;
- vi. Observe dead season or close season.
- vii. Use proper plant spacing; to encourage fast growth of plants
- viii. Proper use of balance fertilizer; to allow plant establish resistance and compensate the attack
- ix. Mixed cropping to reduce rate of spread
- x. Growing resistant varieties
- xi. Sowing clean seed or planting materials
- xii. Growing trap crops.

Any ten (10) points = **10 marks**

7. (a)

- i. Some weeds cause irritation to farmers.
- ii. Some weeds are poisonous to animals and humans.
- iii. Weeds compete with crop plant for nutrient, water, space and light hence lower yield
- iv. Weed affect crop quality.
- v. Weed interfere with mechanization.
- vi. Weed affect the effectiveness of irrigation
- vii. Weeds lower the quality of pasture.
- viii. Increase cost of production.

Any five points = **05marks**

(b)

- i. Soil; soil factors affecting herbicide persistence include soil composition, soil pH and microbial activities.
- ii. Rainfall; washing away herbicide after application.
- iii. Temperature; high temperature cause quick drying of herbicides.
- iv. Humidity; lower humidity in the atmosphere lead to loss of herbicides from leaves through evaporation
- v. Wind; strong wind dry spray droplets before the chemical is absorbed.

1marks @= **05 marks**

8. (a)

- i. Screening germplasm for resistance sources
- ii. Hybridization of selected parents.
- iii. Selection and evaluation of hybrid.
- iv. Testing and release of new varieties 1 mark @=04marks**

(b)

- i. Monoecious and dioecious plant; male and female flower are either found in different parts of plants or in the separate plants.
- ii. Dichogamy; stigma and anther of the same plant mature at different time.
- iii. Heterostyly; when style and filaments in a flower are of different length.
- iv. Herkogamy; presence of physical barriers around the anthers.
- v. Self in-compatibility; in ability of fertile pollen to fertilize the same flower.
- vi. Male sterility. Pollen grain are non-functional

1 mark @= **06 marks**

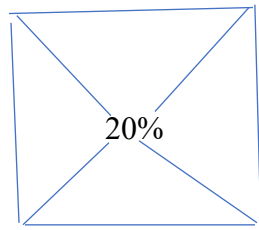
9. (a)

- i. Body size, live weight of an animal.
- ii. Physical condition of an animal. E.g., pregnancy, healthy status etc.
- iii. Age of the animal
- iv. Previous feeds consumed by the animal.
- v. Form of feed either chopped or ground.
- vi. Palatability.
- vii. Level of production.
- viii. Environmental condition like temperature
- ix. Types of animals.

Any five points 1mark @ =**05marks**

(b) solution

Soya bean 40%DCP



4 parts of soya bean

20 parts of wheat meal

Wheat meal 16%DCP

24 total parts

½ mark @= **3marks**

$$\text{Quantity of soya beans} = \frac{4}{24} \times 100 \text{ kg} = \mathbf{16.67kg (01 mark)}$$

$$\text{Quantity of soya beans} = \frac{20}{24} \times 100 \text{ kg} = \mathbf{83.33kg (01 mark)}$$

10. (a)

- i. Yield/productivity
- ii. Palatability
- iii. Nutritive value
- iv. Easy of propagation
- v. Rapidity of establishment
- vi. Ability to compete with weed and pest/disease resistance.
- vii. Adaptation.
- viii. Seed availability
- ix. Persistence of pasture.

Any six (06) points 1mark @= **06 marks**

(b)

- (i) Tethering grazing
- (ii) Zero grazing
- (iii) Rotational grazing
- (iv) Strip grazing

1mark @ = **04 marks**