WAKISSHA JOINT MOCK EXAMINATIONS 2016
UGANDA ADVANCED CERTIFICATE OF EDUCATION
MARKING GUIDE
P515/2
PRINCIPLES AND PRACTICES OF AGRICULTURE
AUGUST 2016

1 (a) **Effects of solutions X and Y on;**

(i) Germination of the maize grains

- Decreasing concentration of X increases germination percentage of the grains while high concentration reduces germination percentage.
- High concentration of Y (60-80) % inhibits germination of maize grain while low concentration of Y increase germination percentage Or Low concentration of both X and Y increase germination percentage

(2x2= 04 marks)

(ii) Growth of maize seedlings

- Roots and shoots development where retarded by high concentration of X while low concentration of X promoted growth of both roots and shoots of the seedlings.
- General growth is greater in roots than shoots at all levels of concentration of X and Y
- High concentration of Y inhibits growth of both shoots and roots while low concentration of Y encourages growth of both roots and shoots.

(2x2=04marks)

(b) **Compare the growth of seedlings whose grains were previously soaked in 80% and 10% of solution Y. Explain your answer.**

- At 80%, they showed no growth in both shoots and roots because there was no stimulating effect as high concentration inhibits roots and shoots growth
- At 10%, growth was higher in roots (there is a significant difference in growth between shoots and roots).
- **Reason:** Because Y is a growth inhibitor thus low concentration would encourage growth of the seedlings.

(03marks)

(c) (i) Explain how the germination test in this experiment could have been carried

- A group of seeds were picked randomly
- A known number of seeds was soaked in each of the solutions,
- They were then removed from the solutions and placed in a germination media
- They were provided with germination conditions
- Germination percentage was calculated thus

$$\% = \frac{\text{No. of seed that germinated}}{\text{No. of seeds planted (tested)}} \times 100$$

- Shoot and root lengths were measured after 10 days (5x1= 05 marks)

(ii) From the results shown, what conclusions can be drawn about solutions X and Y

- Both have inhibiting effects on germination and seedling growth as shown by the control experiment.
- Solution Y has full inhibiting effects on germination as shown at 60-80 concentration of the solution.

(2x1=02marks)

(iii) Explain other factors that can influence the germination efficiency of seeds

- Level of soil moisture
- Level of air
- Temperature
- Soil structure
- Planting depth
- Seed quality (viability)
- Other germination inhibiting features e.g hard seed coat, hairy seeds.

(2x1=02marks)

2. (a) Organic farming – Is the practice of growing crops and rearing animals without the use of agro – chemical such as herbicides, pesticides.

Award 2 marks

(b) Benefits of Organic farming

- Promotes use of locally available materials.
- Reduces cost of production.
- It increases farmers' profit as originally produced crops fetch high market price.
- It is environmentally friendly.
- Encourages use of waste materials.
- Produces healthy foods with less contaminations.
- Improvement in soil physical properties such as structure

Award any 5 points, 2 marks each 2 x 5 = 10markks

(c) Practices that promotes organic farming

- Minimum tillage
- Fallowing of land
- Use of organic manure
- Use of natural / concoction of herbs e.g. neem tree
- Use of buffer strips
- Use of repellant plants.

Award any 2markks @ for any 4 points
2 x 4 = 8marks
Total 2+8+10 = 20 marks

3. (a) Ways of controlling pests in crop store

- Dusting the stores
- Proper drying of crop produce
- Avoid mixing of old produce with new ones.

Award 1½ marks @ for points = 1½ x 5 = 8marks

(b) Why it is difficult to eradicate American bell worm.
- They are polyphagus i.e. feed on many plants
- Have short life cycle

Award 2markks @ for any 4 points
2 x 4 = 8marks

(c) Describe qualities of a food pesticide.
- Should be cheap / affordable.
- Should be broad spectrum i.e. will varieties
- Should not cause harm to crops
- Should be relatively persistence o avoid frequent application
- Should not be toxic to beneficial insects, decomposers e.t.c
- Should be easily biodegradable

Award 1mark @ for any 4 points
1 x 4 = 4marks
Total 8+8+4 = 20marks

4. (a) Advantages of top bear bee hive (KTB)
- It can be easily made from relatively cheap local materials using simple farm tools.
- The size of the hive can vary to suit local conditions
- The bee keeper can carry out inspection of blood combs, queen bee and colony before harvesting to avoid premature harvesting of honey combs.
- Inspection of blood combs for pests and diseases is easy
- The honey is of higher quality and quantity as the combs can be selected free of pollen and brood.
- Other hives products like wax can be got from as compared to other hives
- Can be suspended by wire loops to avoid attacks by aunts, termites and other honey hunting organism.
- It promotes better management techniques which help to preserve and increase the bee population.
- Can be managed by all classes of people since it is placed on stands and bees do not need to be weeded.
- It is durable and can last much longer than traditional bee hives.
- It is easy to maintain.
- It can be placed where the population of livestock and humans is high with limited risk of outbreak.
- Honey harvested is free of contaminants by grubs, dead bees, ash, pollen

Disadvantages of traditional hive
- Combs are fixed and must be broken during harvesting hence cannot be reused.
- Honey quality and quantity is low and poor
- It is not easy to inspect the colony
- It is not easy to harvest honey
- Do not permit return of honey combs
- It is easily affected by pests
- Comparatively low yields are got

Award any 4 advantages @ 1mark = 4marks
Disadvantages of tradition @ 1mark = 04marks

(b) Factors considered when choosing a sit for an apiary.
- Safe distance away from homesteads, people and livestock
- A good distance from source of noise and disturbances.
- Wind breaks, the apiary should have enough and breaks to avoid destruction of hives during windy weather.
- Vegetation, bees depend on flower in the vicinity for their food.
- Water, bees need to cool the hive especially when it is not ensue that there is water in the vicinity so that bees do not disturb people
- Shade; colonies should be under should shade all day. This cools the hive and protects it from attacks from enemies e.g. bel pirts
- Safety from predators like honey badges, aunt safari aunts; pirating irds and other parasites.

Award any 8 points @ 1mark, 8 x 1 =08marks

(c) Factors that affect quality of honey
- Season of year
- Stage of ripening
- Skill
- Method of harvesting
- Storage

Award any 4 points 1mark, 4 x 1 = 04 marks

5. (a) Difference between infectious and contagious diseases
Infectious diseases are caused by living organism / pathogens e.g. Bacteria, Virus, Fungi.
Contagious diseases are diseases spread through contract with infected animals.

Avoid 1mark @ 1 x 2 = 2marks

(b) Sanitation; poor waste disposal transmit diseases.
Ventilation; Poor ventilation spread respiratory diseases.
Over crowding; leads to infections from sick animals to healthy animals
Nutrition; Unbalanced feed lowers animals immunity to fight diseases.
Contaminated feed; feeds contaminated with dung, germs.
Genetic / heredity; diseases from parent transmitted.

Award 1 mk for mentioning for 6 points
1mk for explanations.
2 x 6 = 12marks

(d) Importance of ensuring food health in livestock.
- It ensure quality animal products
- Reduces cost of production in buying of pesticides, dewormers e.t.c.
- Increases quality of animals product
- Reduces spread of diseases.

Award 1 mk @ for any 6 points
1 x 6 = 6marks

6. (a) Energy is the capacity to do work while powers in the rate at which work is done.
Award too marks for properly matched differences

2 x 1 = 02marks

(b) Factors influencing the adoption of draught technologies
- Availability of draughts animals
- Absence of pests and diseases
- Availability of land
- Availability of skilled labour
- Suitable relief / flat land
- Abundance of pastures
- Presence of extension service
- Presence of light vegetation.

7 x 2 = 14marks

(c) How to achieve excellent ploughing while using an ox – plough
- Using a light yoke
- Using a relatively long chain
- Ploughing in light soils
- Proper training of the ox
- Proper handling of the animal
- Ensure enough rest of the animal
- Proper health maintenance
- Good feeding.
- Pairing the animals

7. (a) **Describe how tick control is achieved through dipping**
- Carry out mixing of the acaricide in a drum or reservoir
- Pour the mixed acaricide into the dip tank
- Top up the tank with water to the recommended level.
- Allow 15-20 heads of cattle to stir up the mixture
- Assemble the cattle in a collecting yard.
- Allow cattle to go through the entrance race in a single file or one at a time.
- The animals are immersed in the dip warm and swim across to the slopping exit and go through the exit race
- The animals are temporarily kept in the drainage yard to allow further action of the acaricide.
- Record the cattle that have been dipped.

(7x2=14marks)

(b) **What factors have limited the wide spread use of dip tanks on most farms.**
- Limited skilled labour for testing acaricide concentration.
- Their initial concentration is very high
- Sick, heavily pregnant, lame animal cannot be dipped
- Limited labour as it requires a lot of labour for its usage
- FMD can easily spread
- Chances of drowning are high
- Economical for large scale farmers yet most farmers are small scale farmers
- High maintenance costs.

(6x1=06marks)

8. (a) Course of action by government.

Award any 2marks for correct definition

(b) Roles of agricultural research stations
- Developing new varieties of crops and livestock
- Developing new technologies in crops and livestock
- Breeding for resistant varieties
- Providing information of best agronomic practices
- Testing of new varieties to determine how they perform in local conditions
- Comparing two or more varieties to observe their performance in a particular environment.
- Soil testing and determination of

Award any 6 points @ 2marks 6 x 2 = 2marks

(c) Challenges facing NAADS
- Lack of enough finance to implement its goals.
- Lack of clear comprehensive policy frame work to guide NAADS.
- Existence of other bodies with mandate of some nature to provide extension services.
- Multi sectorial approach makes collective decision marking difficult.
- Interferences from politicians.
- Corruption among many officials of NAADS.
- Presently lack of technical personnel to handle cross section issues.
- Poor extension to farmers today by UPF officials.

Award any 6 points 1mark, 6 x 1 = 06marks

9 (a) Describe the factors you would consider before establishing an agricultural business in an area
- Presence of market for the products of the enterprise
- Presence of power
- Presence of enabling regulations
- Presence of labour
- Nature of the soils in the area
- Climatic conditions of the area
- Nature and quality of the infrastructure in the area e.g roads
- Land availability
- Pests and diseases prevailing in the area
- Availability of farming inputs in the area

($8x1^1/2=12$marks)

(b) Explain the remedies you are likely to take in order to counteract the various risks and uncertainties you would face
- Insuring the business
- Stocking liquid assets
- Restoring your Capital
- Choosing the most certain
- Market diversification
- Savings
- Building own equity
- Using improved production techniques
- Soliciting for government subsidies.

(6x1=06marks)

END