

UNEB UACE AGRICULTURE 2018

THEORY

SECTION A

Question 1 is compulsory

1. An experiment was carried out on maize seeds to find changes in starch and sugar contents of the seeds during germination in darkness. The results of the experiment are shown in Table 1. Study the table and answer questions that follow.

Table 1

Days from start of experiment	Sugar content (g)	Starch content (g)
2	5	35
4	10	30
6	20	20
8	35	15
10	34	5
12	31	2.5

- On the same axis, plot a graph of changes in starch and sugar content against days from start of the experiment.
- Describe the shape of each curve on your graph
- Explain the relationship between the two curves.
- What is the role of water in germination?

SECTION B CROP PRODUCTION

- Explain ways through which soil becomes acidic
 - What is the importance of lime to soil?
 - Explain factors considered before applying lime to soil.
- What is meant by biological control of a crop pest?
 - Explain characteristics of a good biological pest control agent.
 - Give the advantages of controlling pests using biological control method.

SECTION C ANIMAL PRODUCTION

- Describe management practices carried out on a piglet during the first week of its life.
 - Give reasons for the popularity of pig rearing in Uganda.
- What is digestibility?
 - Explain factors that influence digestibility of feeds.
 - Explain why allowance is given for extra ingredients during feed formulation.

SECTION D AGRICULTURAL ENGINEERING

- Explain the criteria used to select farm machines.
 - Discuss ways of encouraging mechanization in agricultural production
 - Outline farm operations that can be mechanized.
- Explain factors that should be considered when choosing materials for construction in a farm.
 - Suggest possible causes of weaknesses in farm buildings.
 - What are the characteristic of a good farm store?

SECTION E AGRICULTURAL ECONOMICS

- Examine the consequences of a high population on agricultural production.
 - Suggest measures that can be taken to meet the food demands of the growing population in Uganda.

9. a) Outline roles of agricultural research institutions in Uganda.
 b) Explain ways in which government can promote agricultural development in Uganda.

PRACTICAL

1. You are provided with specimens A and B which are extracts from fertilizers.
 a) Use them to carry out tests in Table 1. Record your observations and deductions in the Table.

Table 1

Test	Observations	Deductions
i) Put 1cm ³ of A in a test tube, add 5 pieces of copper turnings followed by four drops of concentrated sulphuric acid and warm.		
ii) Put 1cm ³ of B in a test tube, add 3 drops of dilute nitric acid followed by silver nitrate solution		

- b) From your results suggest the possible fertilizer from which each extract was obtained.

A
 B

- c) Basing on the major nutrient identified in each extract, suggest with a reason, the extract most suitable to apply for growing leafy vegetable crops.
 d) Suggest two ways of applying the fertilizer from which each extract was obtained. Give a reason for your answer.

2. You are provided with specimens C and D which are livestock products.

- a) Measure 50cm³ of specimen C and pour it in a beaker. Add one spatula of ascorbic acid into the beaker, stir and leave for

3 minutes. Line a funnel with muslin cloth and place it on 100cm³ measuring cylinder. Pour the contents of the beaker into the funnel and record the volume of the filtrate and solids after dripping has stopped, in Table 1.

Repeat the procedure with specimen D

Table 1

Specimen	Volume of filtrate (cm ³)	Volume of solids (cm ³)
C		
D		

- b) i) State the role of ascorbic acid in the experiment.
 ii) Calculate the percentage composition of solids in each of the specimens C and D
 c) Basing on the results in (b) (ii), give the suitability of each specimen C and D for feeding calves.
 d) i) Name the filtrate produced in the experiment carried out in (a)
 ii) Give one product that can be made from the solids produced after filtration in (a)

3. Specimens E and F are commonly used in a farm workshop.

- a) Basing on the observed features, state the function of each specimen
 b) Describe how each specimen is used.

4. Specimens H1 and H2 are used in livestock management. Examine them and answer the questions that follow.

- a) State the function of each specimen.
 b) Explain how any two observable features on each specimen enable it to perform its function.
 c) Describe the procedure of using each specimen to perform its function
 d) Suggest any two precautions that should be taken when using each specimen.

5. Specimens J,K and L are common plants found on range lands.

- a) Classify the specimens into three groups according to their economic importance.
 b) State one effect of each specimen on the quality of range land.
 c) Explain one likely negative effect of feeding a lactating cow with each of the specimens K and L
 d) Basing on observable features, suggest with a reason one method of propagating each specimen.

PAPER 1

SECTION A

1. Which one of the following is the reason for leaving some honey in the hive when harvesting? To
 - A. allow bee eggs to hatch
 - B. stimulate bees to collect more honey
 - C. prevent bees from starving
 - D. prevent bees from swarming.
2. Keeping inventory records on the farm can enable a farmer to
 - A. evaluate the financial stand of the farm
 - B. establish the value of liabilities on the farm
 - C. identify the source of assets on the farm
 - D. establish the value of assets on the farm
3. Which one of the following is the reason why regular turning of material during composting is recommended?
 - A. Allows even distribution of nutrients.
 - B. Prevents loss of nutrients through seepage
 - C. Allows uniform decomposition of compost materials
 - D. allows adequate wetting for proper decomposition
4. To ensure that the best individual is selected in a livestock improvement programme, selection should be done
 - A. only on animals that show good traits.
 - B. within a group of animals of similar age raised under similar conditions
 - C. based on the records of the relatives of the animals
 - D. based on the performance records of the offspring of the animal
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6. The right stage for harvesting a mushroom is when the cap
 - A. is flattened
 - B. is curved upward
 - C. is curved downward
 - D. has shed its pores.
7. Women tend to dominate urban cultivation because they
 - A. are marginalized in other forms of employment
 - B. adapt much more easily to urban cultivation conditions
 - C. are more skilled than men in small scale cultivation
 - D. make up a bigger proportion of the urban population
8. Biological activities in the soil may cause soil acidity through
 - A. microbes secreting acids into the soil
 - B. anaerobic decomposition of organic matter
 - C. plant roots secreting acids into the soil
 - D. their interaction with fertilizers
9. A continuous supply of oxygen in a fish pond can be maintained by
 - A. removing water weeds from the pond
 - B. pumping air into the pond
 - C. refilling of the pond with fresh water regularly
 - D. planting grass on the pond walls
10. Which one of the following is the most important factor to consider when siting an apiary?
 - A. Nearness to flowering plants
 - B. Provision of shade
 - C. Nearness to homestead
 - D. Nearness to market.
11. An example of a farm tool which belongs to a second class lever is a
 - A. wheel barrow
 - B. claw hammer
 - C. surgical knife

D. pair of pliers

12. The main reason for including blood meal in poultry feeds is to provide

- A. fats and oils
- B. minerals and proteins
- C. carbohydrates
- D. vitamins and sugars.

13. Which one of the following describes buffer stocks in the marketing of agricultural products?

- A. Products kept in store and only released during shortage.
- B. Products imported into the country during periods of emergency.
- C. Products kept in store waiting to be processed into finished grade
- D. Products kept in store awaiting exportation.

14. Bloat in cattle can be prevented by

- A. maintaining high standards of hygiene
- B. feeding cattle on hay during the rainy season
- C. providing cattle with foods rich in calcium
- D. administering antibiotics to cattle

15. Which one of the following is considered as an uncertainty in farming?

- A. Change in weather
- B. Theft of agricultural products
- C. Changes in government policies
- D. Disease outbreak

16. Which one of the following is true of the F₁ generation, when two parents of different homozygous conditions for the same trait are crossed?

- A. They will all be homozygous for the trait
- B. The ratio of the heterozygous to homozygous condition will be 3:1
- C. They will all be heterozygous for the condition.
- D. Half will be homozygous and half heterozygous.

17. Which one of the following is true of the behavior of auxins during phototropism? They are

- A. activated on the illuminated side of the shoot
- B. distributed to the dark side of the shoot
- C. destroyed on the lit side of the shoot
- D. moved to the illuminated side of the shoot.

18. Translocated herbicides differ from contact herbicides in that they

- A. kill only weeds that have emerged
- B. require proper wetting of leaves
- C. kill only the shoot system of the perennials
- D. require low volume sprays

19. The type of loan extended to farmers to carry out fencing of land and buying machinery is an example of

- A. seasonal loan
- B. long term loan
- C. short term loan
- D. intermediate term loan

20. Which one of the following has the least effect on urban farming?

- A. The quality of available water.
- B. The potential for irrigation
- C. Land tenure conditions
- D. The structure of the urban population

21. Which one of the following promotes a high yield of honey in a bee colony?

- A. Maximum size of the bee hive
- B. Drone population being greater than that of worker bees
- C. Protecting the hive from extreme weather conditions
- D. Harvesting honey more frequently

22. Which one of the following is the correct procedure to be followed in slaughtering an animal?

- A. Starving
- B. Hoisting
- C. Stunning
- D. Slaughtering

stunning F0E0 slaughtering F0E0 hoisting F0E0C. Starving
hoisting F0E0 slaughtering F0E0 starving F0E0D. Stunning

23. Which one of the following is an advantage of cage culture systems?
A. fish mature faster
B. High fishing stocking densities are achieved
C. The fish attract a high market price
D. Low amounts of high quality feeds are required
24. Which one of the following may lead to an increase in the population of earthworms in the soil?
A. Draining the soil
B. Application of artificial fertilizers
C. Cultivation to loosen the soil
D. Application of organic manure
25. The price of perishable agriculture products can be stabilized by
A. production of the amount demanded
B. increasing the amount of products
C. processing the produce
D. introduction of buffer stocks
26. A fish pond containing zooplanktons, small fish, large fish and fish eagle was polluted with a pesticide. Which of the following had the highest amount of the pesticide in its tissues?
A. Zooplankton
B. Small fish
C. Big fish
D. Fish eagle
27. Which one of the following is not a required feature in a calf house?
A. Hard, easy to clean floor.
B. High walls.
C. Adequate ventilation
D. Spacious and drought free house
28. Which one of the following explains why milk is highly perishable?
A. Has high water content
B. Has high carbohydrates content
C. Has an ideal composition of nutrients for microbial growth
D. Contains fats which go rancid
29. A nutrient is essential for plant growth and development if
A. it is required by the plant at the critical stage of growth.
B. its presence in the plant does not cause a growth abnormality
C. its deficiency results into a growth deformity
D. it is easily absorbed by the plant
30. Thawing of semen after refrigeration before use is intended to
A. activate the sperms
B. prolong the life of sperms
C. dilute the semen
D. ease the insemination process

SECTION B

31. a) Give the meaning of
i) Land registration
ii) land adjudication
- b) State the features of a land title deed
- c) Explain the benefits of
i) land registration
ii) land adjudication
32. A diary farmer has a piece of land measuring 500m by 500m and would like to erect a four strand barbed wire fence around it with a gate 5m wide. If the spacing between the posts is 5m and each roll of barbed wire is 600m, a) Calculate the

- i) perimeter of the land
 - ii) number of fencing posts required.
 - iii) number of staples (U-nail) required.
 - iv) number of rolls of barbed wire
- b) State the qualities of a good farm gate?

33. a) Describe each of the following simple machines used on a farm

- i) Lever
- ii) Inclined plane
- iii) Pulley

b) Give an example of how each of the machines in (a) can be used on a farm

- i) Lever
- ii) Inclined plane
- iii) Pulley

34. a) What is a hormone?

b) State two roles of follicle stimulating hormone in the reproductive cycle of a cow.

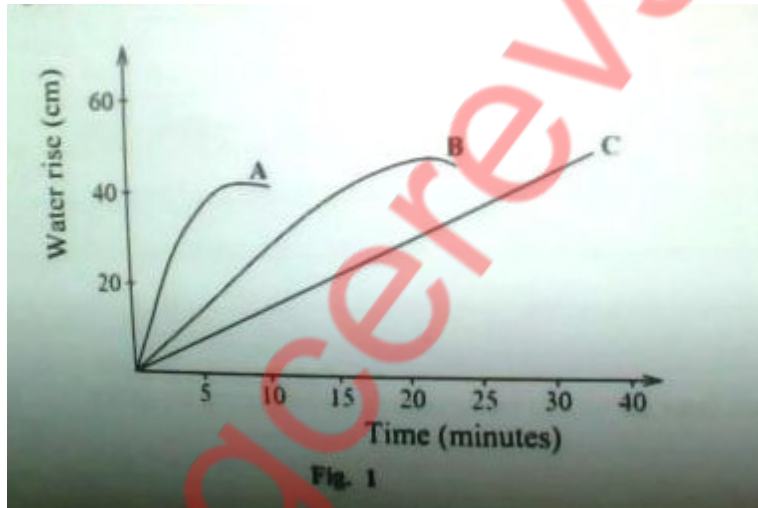
c) Give three effects of hormones in milk production

d) Explain the causes of milk hold-up.

35. a) Explain four factors to be considered when sitting an apiary.

b) State four methods that can be used to encourage bees to colonize a hive

36. Figure 1 shows relative rates of water rise in three soil samples.



a) Describe the trend in the three soil samples.

b) Suggest the identity of soil samples A and C giving a reason in each case.

c) Give three ways in which the information portrayed by the graph is useful to a farmer.

d) Name the forces that are responsible for holding water in soil pores

37. a) Give four effects of feeding animals in feeds lacking calcium.

b) State three observable symptoms of each of the following nutritional diseases.

- i) Milk fever
- ii) Bloat.