



Dr. Blosa Science

Sponsored by
The Science Foundation College
Uganda East Africa
Senior one to senior six
+256 778 633 682, 753 802709
Based On, best for science

digitalteachers.co.ug



UACE P515/1 Principles and practices of agriculture 2000

SECTION A (30 MARKS)

Write the letter corresponding to the correct answer

- Which one of the following best explains why chemical treatment of timber is usually done before the timber is used to make structures?
 - The wood is still fresh to allow easy chemical penetration
 - The chemicals can be effectively applied to all parts of the wood
 - The amount of chemicals required for treatment is small
 - The treatment of wood takes a much shorter time
- Which of the following is an advantage of bulky livestock feed? It should
 - Contain a lot of fiber
 - Are high in nutrients
 - Contain a lot of water
 - Are largely digestible
- Which one of the following is a desirable quality of a semen diluent? It should
 - preserve the viability of spermatozoa
 - remain liquid at low temperatures
 - be able to increase the activity of spermatozoa
 - decrease the viscosity of semen
- In the production process, it is not advisable to operate below the economic optimum region because at this stage
 - there is over utilization of resources
 - there is scarcity of resources
 - there is underutilization of resources
 - resources are expensive
- Which of the following explains increased branching when the terminal bud of the stem is cut off?
 - Increased levels of auxins
 - Exposure to lower parts to sunlight
 - Increased effects of gibberellins
 - Increased rate of photosynthesis
- Which one of the following represents the correct sequence of ions during nitrification

- A. Ammonium → nitrite → nitrates
 - B. Ammonium → nitrates → nitrites
 - C. Nitrate → nitrites → ammonia
 - D. Nitrites → ammonium → nitrate
7. A microscope has an eye piece of x10 and objective lenses of x10, x30, and x40. Which one of the following is the maximum magnification possible with this microscope?
- A. 90 times
 - B. 300 times
 - C. 400 times
 - D. 120,000 times
8. Which one of the following is not a unit of tractor transmission system?
- A. Differential
 - B. Gear box
 - C. Clutch
 - D. Hydraulic pump
9. One reason for making the pitch of a roof high when using grass as roofing material
- A. Reduce the effect of strong wind on the roof
 - B. Improve durability of the roof
 - C. Improve the ventilation of a house
 - D. Make the building warmer
10. Early maturity is a desirable characteristic in beef cattle because it
- A. reduces the chances of disease attack in animals
 - B. saves on the feeding costs
 - C. allows for early mating of animals
 - D. results in better quality meat
11. Which one of the following is not a likely cause of early leaf senescence in plants
- A. Pest and disease attack
 - B. Water stress at early stage of growth
 - C. Nitrogen deficiency in the soil
 - D. High calcium level in the soil
12. Which one of the following would cause a tractor engine to stop suddenly?
- A. Low fuel level in the tank
 - B. Faulty ignition system
 - C. Broken clutch
 - D. Faulty cooling system
13. Which one of the following is a reason for breeding for shortness in cereal crops?
- A. Making the crops more tolerant to draught
 - B. Reducing hailstone damage on the crop
 - C. Partitioning more assimilates to grains
 - D. Making the crop more tolerant to disease and pest attack

14. One way in which air seasoning of wood is better than kiln seasoning is that
- A. Requires less stacking space
 - B. Is a cheaper process
 - C. Makes timber more resistant to insect and fungal attack
 - D. Can decrease moisture content of timber to a desired level
15. The dew lap in tropical cattle breeds serves to dispose of surplus heat from the animal by
- A. Absorbing excess heat from the body
 - B. Fanning the animal as it swings
 - C. Increasing the surface area of the animal
 - D. Releasing a lot of sweat from its surface
16. Which one of the following least affects the farming decision made by a common farmer?
- A. Government policy
 - B. Opportunity cost
 - C. Personal taste
 - D. Farmer's family size
17. Which one of the following is a limitation of obtaining loans from individual money lender for a farm business?
- A. Individual money lender are dishonest
 - B. Interest rates on loans are too high
 - C. Only short term loans are offered
 - D. Terms of repayment are not specified
18. Which one of the following is a characteristic of plants growing in highly water soil?
- A. Stunted growth
 - B. Early maturity
 - C. Wilting
 - D. Shallow roots
19. One reason why it is difficult to control fungal diseases in crops is that fungi
- A. Can hardly be seen with the naked eye
 - B. Produce many spores
 - C. Can tolerate a wide range of soil conditions
 - D. Are resistant to chemicals applied to kill them
20. A sample of animal feed gave positive results with both Biuret and Benedict's test. Which of the following foods were contained in the sample?
- A. Fat, mineral salts and proteins
 - B. Proteins and carbohydrates
 - C. Minerals salts and proteins
 - D. Fats and carbohydrates
21. Which one of the following types of pesticides is most suitable for controlling sucking pests?
- A. Contact pest
 - B. Surface sterilants
 - C. Systemic pesticides
 - D. fumigants

22. The bean disease characterized by brown, sunken and soaked lesions on the pod is
- A. Bean mosaic
 - B. Angular leaf spot
 - C. Bean rust
 - D. Bean anthracnose
23. Which one of the following factors does not changes in gene frequencies in population?
- A. Mutation
 - B. Migration
 - C. Genetic drift
 - D. Epistasis
24. Why is it not advisable to compost materials having a low carbon: nitrogen ratio?
- A. Organic matter and nitrogen can easily be lost from the material
 - B. They take long to mineralize
 - C. The microorganism involved consume most of the nitrogen in the material
 - D. They become toxic to the plant
25. The animal disease which is vector borne is
- A. Anthrax
 - B. Foot and mouth
 - C. Rinderpest
 - D. Trypanosomiasis
26. Which one of the following does not affect the quality of milk produced by a cow?
- A. Age of a cow
 - B. The breed of a cow
 - C. The type of feed
 - D. The amount of feed
27. Which one of the following information should be entered in a farm diary?
- A. Farm tractor registration number
 - B. Items sold or bought
 - C. Farm enterprise
 - D. Farm size
28. One reason for pruning tea is to
- A. improve the quality of leaves
 - B. encourage production of new shoots
 - C. make harvest easier
 - D. control fungal disease in the crop
29. Goats are easier to rear than other farm animals because they can
- A. withstand extreme conditions
 - B. eat leaves of shrubs and grass
 - C. breed and multiply faster
 - D. do without supplementary feeding
30. one way in which enzyme differ from inorganic catalyst is that enzymes
- A. are very unstable

- B. can be used over and over again
- C. are less effective than inorganic catalyst
- D. catalyze reversible reactions

SECTION B

31. (a) Suggest six advantages of packaging as a marketing function (06marks)
(b) Give four measures that could be taken to reduce the effects of price fluctuation on a farmer. (04marks)
32. (a) Give six considerations that should be made by a farmer when selecting and preparing seeds for planting. (06marks)
(b) Four advantages of planting crops on ridges. (04marks)
33. (a) Describe four precautions to be taken when air seasoning timber (04marks)
(b) State three advantages and three disadvantages of using wood to make farm structures. (06marks)
34. (a) Explain the meaning of the following terms (02 marks each)
(i) seed viability
(ii) seed dormancy
(b) Describe one method you would use to determine the viability of a sample of seeds. (03marks)
(c) Explain the significance of seed dormancy (03marks)
35. A cow produces milk after calving. It is then dried out before the next calving
(a) (i) Describe two methods by which drying-off is achieved
(ii) Explain how drying-off benefits the cow. (03marks)
(b) Colostrum is produced by the cow for 3 to 4 days after calving.
(i) State two ways in which colostrum in the first few days differ from ordinary milk. (02marks)
(ii) State two benefits to the calf of being given colostrum the first few days of its life. (02marks)

Suggested answers

1B 4C 7C 10B 13D 16D 19C 22D 25D 28D

2A 5C 8A 11A 14B 17C 20B 23D 26D 29B

3A 6D 9B 12A 15C 18D 21C 24D 27B 30D

Comments

18. Shallow root system to lack of oxygen in deeper soil layers

24. High nitrogen content may be toxic to composting microbes

SECTION B

31. (a) Suggest six advantages of packaging as a marketing function (06marks)

- **Protection:** It safeguards products from damage during transportation, handling, and storage.
- **Information:** Packaging provides essential details about the product, such as ingredients, usage instructions, and expiration dates.
- **Safety:** Proper packaging ensures that products reach consumers in good condition, preventing contamination and spoilage.
- **Branding:** Attractive and well-designed packaging helps in building brand identity and recognition.
- **Marketing:** Packaging can be a powerful marketing tool, attracting customers and influencing their purchasing decisions.
- **Convenience:** It makes products easier to handle, store, and use.
- **Sustainability:** Innovative packaging solutions can reduce environmental impact by using recyclable or biodegradable materials.

(b) Give four measures that could be taken to reduce the effects of price fluctuation on a farmer. (04marks)

- **Buffer stocks.** The government should buy up part of the supply when output is in excess, store this surplus and later sells it to the consumer in times of reduced supply.
- **Stabilization fund.** The government through marketing boards can maintain or increase prices of agricultural products, depending on world market prices. If profits are made, they are saved and used to stabilize prices and incomes of the farmers.
- A variety of agricultural activities should be introduced e.g. crop farming, poultry, animal husbandry etc. to reduce over dependence on one or a few sources of agricultural income in a bid to stabilize farmers' income.
- **Encourage formation of cooperatives** to bargain fair prices
- **Introduce irrigation schemes** to ensure continuous supply of agricultural products.

- **Stability in prices of agriculture** can also be attained by improving transport system to enable easy marketing
- There is a need to improve, **develop and expand storage facilities** to accommodate excess output in agriculture.
- **Price control.** Government should establish the minimum and maximum prices for agricultural output.
- **Market expansion.** Government should expand agricultural output market through economic integrations
- encourage further diversification of agriculture
- Encourage processing to increase value and shelf-life
- Dissemination of marketing information to the farmers.

32. (a) Give six consideration that should be made by a farmer when selecting and preparing seeds for planting. (06marks)

- Should be viable
- Should be disease
- Should be free from mechanical damage
- Should be mature
- Should have appropriate size to ensure enough food reserve
- Should be free from contamination
- Should be of desired genetic make up
- Should be plump i.e. well-formed and not wrinkled

(b) Four advantages of planting crops on ridges. (04marks)

- Improved weed control: ridges reduce weed density
- Warmer soil temperature: the ridges warm up sooner because the residue from the previous crop settle between them
- Better soil moisture
- Better aeration
- Erosion control: ridges act like mini terraces, reducing soil erosion
- Reduced herbicide costs due to the effective weed control
- Controlled traffic patterns: this system helps in managing traffic patterns, reducing soil compaction

33. (a) Describe four precautions to be taken when air seasoning timber (04marks)

- Protection of timber from termites, insects and rodents to prevent destruction
- Drying of the timber indoors to allow uniform drying to prevent cracking and shrinkage
- Protection from water and excessive humidity to prevent them from rotting and hasten drying
- Heaped on leveled ground to prevent from wrapping and gap left to allow air circulation.
- Preservation of handling equipment to prevent rotting

- (b) State three advantages and three disadvantages of using wood to make farm structures.
(06marks)

Advantages of using wood to make farm structures

- It is relatively cheap
- Durable
- Easily worked with simple tools
- Less labour is required to work with wood

Disadvantages of using wood to make farm structures

- Easily catch fire
- Require treatment to last
- Low strength
- Easily affected by weather

34. (a) Explain the meaning of the following terms (02 marks each)

- (i) seed viability

Seed viability refers to the **ability of a seed to germinate and develop into a healthy seedling under favorable conditions.**

- (ii) seed dormancy

Seed dormancy is defined as the **inability of a viable seed to germinate under conditions favorable for germination.**

- (b) Describe one method you would use to determine the viability of a sample of seeds. (03marks)

- **Germination Test:** Place a specific number of seeds (e.g., 100) on a moist paper towel, fold it, and place it in a plastic bag. Keep it in a warm place and check after a few days to see how many seeds have sprouted.
- **Water Test:** Place seeds in a container of water. Viable seeds will sink, while non-viable seeds will float.
- **Excised Embryo Test:** This involves removing the embryo from the seed and placing it in a nutrient solution to see if it grows.
- **Chemical Test:** Some seeds can be tested using chemicals that react with living tissues, indicating viability.
 - o Viable seeds soaked in 0.1% tetrazolium salt solution and left for 24 hours will have their embryo stained red.
 - o Viable seeds decolorize warm potassium permanganate solution
- The **electrical conductivity test** measures the leachate's conductivity when seeds are soaked in water, providing an indirect assessment of seed viability.

- (c) Explain the significance of seed dormancy (03marks)

- Survival in adverse conditions

- Allows seeds and fruits to disperse
- Artificial storage: Seed dormancy allows agricultural seeds to be stored artificially.

35. A cow produces milk after calving. It is then dried out before the next calving

(a) (i) Describe two methods by which drying-off is achieved

- **Incomplete milking:** this involves milking the cow half way its production capacity so that the remaining milk in the udder exerts pressure on the milk secreting cells which will stop secreting milk.
- **Intermittent milking:** the cow is milked at intervals of days and later left completely after 5 days or more.
- **Cessation Milking:** this is when milking stopped once for all. It causes a lot of pain to the animal and can easily result into mastitis
- **Dry cow therapy:** Here antibiotics are included in feeds which will control mastitis.

(ii) Explain how drying –off benefits the cow. (03marks)

- Allow the cow to restore udder tissues before getting back to lactation
- Allow the cow to replace the minerals depleted during lactation
- To maintain a high future milk yield in the next lactation
- Enable the cow to gain weight before delivering
- To ensure high quality colostrum at birth
- To enable treatment of sick cow

(b) Colostrum is produced by the cow for 3 to 4 days after calving.

(i) State two ways in which colostrum in the first few days differ from ordinary milk. (02marks)

- Colostrum is filled with immunoglobins to boost your baby's immune system and protect it from illness.
- Colostrum has two times as much protein.
- Colostrum has four times as much zinc.
- Colostrum is lower in fat and sugar so it's easier to digest.
- Colostrum is thicker and more yellow.

(ii) State two benefits to the calf of being given colostrum the first few days of its life. (02marks)

- Calves obtain passive immunity
- reduces chances of diseases
- Reduced death rates
- Better growth rates

- Improved lifetime productivity and fertility

Please obtain free downloadable notes of general paper, biology, economics, geography etc. from digitalteachers.co.ug website

Thanks

Dr. Bbosa Science