



Dr. Blosa Science

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UACE P515/1 Principles and practices of agriculture 2007

SECTION A (30 MARKS)

Write the letter corresponding to the correct answer

- The size of spacing during planting depends on
 - soil humidity
 - type of the plant
 - size of seeds
 - area of land available
- Which of the following occur in a diesel engine to produce power?
 - Fuel and air are mixed, compressed and ignited
 - Fuel is compressed, mixed with air and ignited
 - Air is compressed, mixed with fuel and ignited
 - Fuel and air are ignited and then compressed
- Which one of the following should not be carried out to correct a low specific gravity of an electrolyte in a battery?
 - Adding of distilled water
 - Recycling the battery
 - Adding of sulphuric acid
 - Emptying the battery and filling it with new electrolyte
- In herbaceous plants, support is provided by
 - Sclerenchyma
 - Turgidity of parenchyma
 - Thickness of collenchyma
 - Lignification of tracheid
- Which one of the following diseases is controlled from spreading by burning the carcass?
 - Foot and mouth disease
 - Anthrax
 - Brucellosis
 - Heart water

6. When the price of meat was 1500 Uganda shillings per kg, a family consumed 20kg per month. When the price raised to 2500 Uganda shillings, the family readjusted to 10kg per month. What is the elasticity of demand for meat?
- 1.33
 - 0.4
 - 0.67
 - 0.75
7. Which one of the following factors is least considered when planting a farm lay-out?
- The size of the farm
 - Topography of the land
 - Capital
 - security
8. A watering can is raised when watering seedling in a nursery bed so as to
- make sue water reaches every part of the bed
 - soften the soil so that the nutrient absorption is eased
 - avoid erosion and damage of the seedlings
 - encourage water penetration into the soil
9. Which one of the following stage in cell division is represented in figure 1?

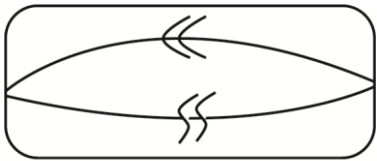


Fig. 1

- Prophase I
 - Prophase II
 - Metaphase I
 - Metaphase II
10. In farm animals, premature births are sometimes caused by insufficient amount of
- progesterone
 - oxytocin
 - oestrogen
 - prolactin
11. Which one of the following best explains why plants of the same species may respond differently to deficiency of the same nutrients?
- Uneven distribution of the nutrient in the soil
 - Genetic variation of the plant
 - Uneven distribution of water in the soil
 - Different photosynthetic mechanism of the plant
12. The formation of a dark sticky substance on the head of maturing sorghum plant is a symptom of
- tarspot
 - head plast
 - anthrocnose

- D. covered smuts
13. Which one of the following affects the composition of milk produced by a cow
- A. Age of the cow
 - B. Breed of the cow
 - C. Type of feed
 - D. Time of milking
14. The use of a gearbox in power transmission system of a tractor is to
- A. Increase the power output of the engine
 - B. Enable the engine to run at constant speed
 - C. Adjust the speed of rotation of shaft in the transmission system
 - D. Convert or disconnect the engine from the rest of the power transmission system
15. Which one of the following statements is true of complementary products?
- A. An increase in production one leads to an increase in the production of the other
 - B. They have equal demand in the market
 - C. They use the same quantities of input
 - D. An increase in the production of one leads to a decrease in the production of the other.
16. Which one of the following is a demerit of mixed farming?
- A. There is shortage of labour throughout the year
 - B. No additional income is earned from the enterprise
 - C. It requires heavy capital investment
 - D. Human nutrition suffers due to lack of variation
17. The most profitable level of production is when the
- A. Marginal product is at its maximum
 - B. Average product is at its maximum
 - C. Marginal product and average product are at maximum
 - D. Marginal product is at zero
18. Which one of the following does **not** adversely affect the pH of the soil?
- A. Absorption of bases by plants
 - B. Production of carbon dioxide by plant roots
 - C. Leaching
 - D. waterlogging
19. In flowering plants, the final stage of development of the ovule is the
- A. seed
 - B. seed coat
 - C. fruit
 - D. embryo
20. In rabbit, brown fur is dominant over black fur. When two rabbits were mated, the offspring were in the ratio 1brown:1black. Which one of the following is genotype of the parents?
- A. Both were heterozygous
 - B. Both were homozygous recessive
 - C. One was homozygous recessive and the other heterozygous
 - D. One was heterozygous and the other homozygous dominant

21. Which one of the following correctly describes the greenhouse effect?
- A. Increasing atmospheric carbon dioxide prevents heat loss from the earth's surface
 - B. Depletion of the ozone layer increases the atmospheric temperature
 - C. The earth gives out carbon dioxide which prevent light rays from the sun reaching the earth surface
 - D. The action of CFCs on ozone layer produces heat that increases atmospheric temperature
22. The function of the frog in an ox-plough is to
- A. Penetrates the soil and cut furrow slices at the desired depth
 - B. Provide attachment for the beam and land side share
 - C. Adjust the depth and width of Ploughing
 - D. Turn the furrow slice as to bury trash
23. A balance sheet is a statement showing the
- A. Assets and liabilities of a business
 - B. Income and expenditure of a business
 - C. Profit or loss of a business
 - D. Cash inflow and outflow
24. The following are uncertainties except
- A. Price fluctuation
 - B. Technological change
 - C. Change of government policy
 - D. Theft of produce
25. The bacteria which convert ammonia into nitrites in the soil are
- A. Nitrobacter and azobacter
 - B. Rhizobium and Azobacter
 - C. Pseudomonas and Nitrosoonas
 - D. Nitrobacter and clostridium
26. Which one of the following is found in both DNA and RNA?
- A. Double helix
 - B. Ribose
 - C. Sugar-phosphatechain
 - D. thymine
27. the dewlap achieves the cooling effect in cattle by
- A. absorbing excessive heat from other part of the body
 - B. fanning the animal as it moves along
 - C. releasing more sweat than any part of the body
 - D. increasing the surface area of animal.
28. Which one of the following types of pesticides is most effective in controlling aphids?
- A. Contact pesticide
 - B. Surface sterilant
 - C. Fumigants
 - D. systematic

29. Which one of the following discourages farmers from acquiring loans from money lending institution?
- Lending institution are dishonest
 - Interest is too high
 - Terms of repayment are not often specified
 - Only short term are offered
30. Which one of the following sets of vitamins is not necessarily included in the formulation of feed of ruminants?
- B, D and e
 - C, B and K
 - K, E and D
 - A, E and D

SECTION B

Do all numbers

31. (a) Differentiate between
- effective demand and elasticity of demand (02marks)
 - profit and interest (02marks)
 - variable cost and fixed costs (02marks)
- (b) (i) What is meant by Agricultural Credit? (01marks)
- (ii) Suggest **three** reasons why agricultural credit scheme has not been successful in Uganda. (03marks)
32. (a) Explain **six** effects of high temperatures on animal production. (06marks)
- (b) Outline **four** ways in which farm animals adapt to high temperatures. (04marks)
33. Figure 2 shows the approximate water requirements of cotton crop at monthly intervals throughout its growth period. Study the graph and answer the questions that follow.

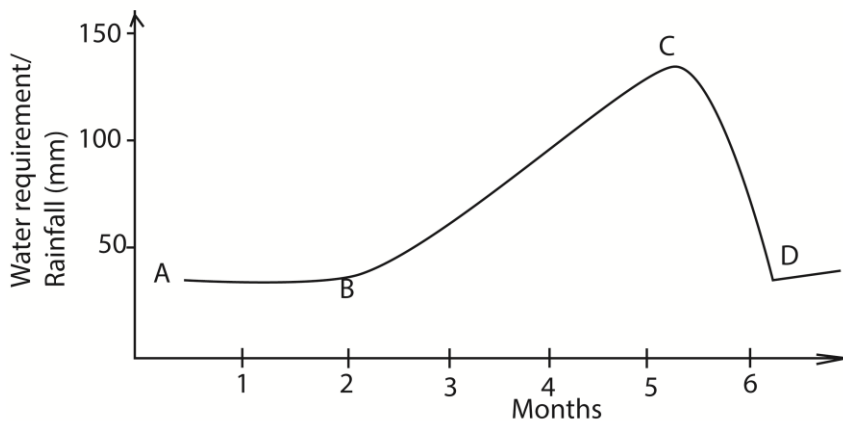


Fig. 2

- (a) Describe the trend of water requirement by the cotton plant (03marks)
- (b) Explain the requirements for the cotton plant within the following periods
 - (i) A-B (1½ marks)
 - (ii) C (1½ marks)
 - (iii) C – D (1½ marks)

(c) Explain what would happen if the water supply remained high from point C onwards. (2½ marks)

34. A crop of maize seedling was sprayed with concentrated liquid fertilizer. Later, the seedlings began to wilt, but recovered when it rained. After one week, a nearby pond had developed a thick covering of green algae. Later, many fish in the pond died, usually at night.

From this information, give an explanation for each of the following observations.

- (a) Wilting of seedlings (02marks)
 - (b) Recovery of seedlings from wilting (02marks)
 - (c) Growth of algae in the pond (02marks)
 - (d) Death of fish, especially at night. (04marks)
35. (a) Give five consideration that should be made in the construction of a maize crib. (05marks)
- (b) Outline five factors to consider when selecting the types of construction material to use on a farm.

Suggested answers

- | | | | | | | | | | |
|-----|----|----|-----|-----|-----|-----|-----|-----|-----|
| 1B | 4A | 7C | 10A | 13B | 16C | 19A | 22B | 25C | 28D |
| 2A | 5B | 8C | 11B | 14C | 17D | 20C | 23A | 26C | 29B |
| c3B | 6D | 9D | 12D | 15A | 18C | 21A | 24D | 27D | 30B |

Comments

6. price elasticity of demand = $\frac{\text{Percentage change in quantity demanded}}{\text{percentage change in in price}}$

$$= \left[\frac{20-10}{20} \times 100 \right] \div \left[\frac{2500-1500}{1500} \times 100 \right]$$

$$= 0.75$$

24. Theft is a risk can be insured agaist

SECTION B

31. (a) Differentiate between
- (i) effective demand and elasticity of demand (02marks)

Effective demand is the amount of goods the consumer is willing and able to buy at a particular price while elasticity of demand is the change in quantity demanded resulting from a percentage change in a price of a commodity.

(ii) profit and interest (02marks)

Profit is equal to total revenue minus total cost i.e. is the difference between the total revenue and the total costs while interest is the additional money paid using borrowed money.

(iii) variable cost and fixed costs (02marks)

Variable costs are cost which change with output while fixed costs are those that do not vary/change with the volume of output

(b) (i) What is meant by Agricultural Credit? (01marks)

It is a financial assistance given to farmers either in cash or in kind to be paid back at an agreed interest and time/loan to farmers to aid in agricultural production.

(ii) Suggest **three** reasons why agricultural credit scheme has not been successful in Uganda. (03marks)

- High interest rate
- High financial illiteracy level of farmers.
- Unstable weather
- Insecurity in some area
- Price fluctuation
- Poor market
- Dishonesty among borrowers
- Lack of security/collateral
- Corruption of officials
- Political interference
- Misallocation of funds

32. (a) Explain **six** effects of high temperatures on animal production. (06marks)

- High temperature stresses animals and reduces feed intake hence low production
- Stress caused by high temperature influences the protein and fat composition of milk
- High temperature promote growth of parasites and some disease causative organism thereby decreasing animal production
- High temperature cause high water losses from animals causing increased water intake
- Libido is encouraged in female animals at high temperature
- High temperature reduce spermatogenesis and low production
- Power output is reduced in work animals due to stress at high temperature

(b) Outline **four** ways in which farm animals adapt to high temperatures. (04marks)

- Vasodilation and sweating
- Take a lot of water

- Reducing metabolic rate
- Reduced activity
- Seek shade
- Hair lowered
- Sheep have light colored hide to reflect heat
- Possession of dewlap to increase surface area for heat loss
- Birds play in dew/bathe in sand

33. Figure 2 shows the approximate water requirements of cotton crop at monthly intervals throughout its growth period. Study the graph and answer the questions that follow.

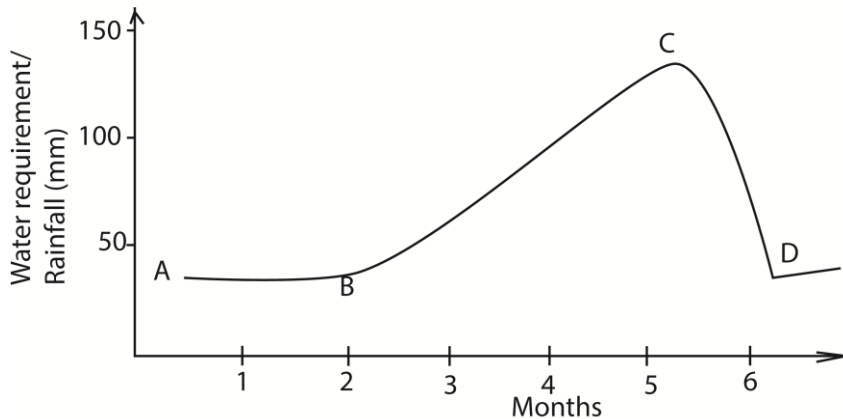


Fig. 2

- (a) Describe the trend of water requirement by the cotton plant (03marks)
- In the first two months, there was an average water requirement. After two months there is a sharp rise (exponential) rise in water requirement to the maximum at the fifth month (B to C), and thereafter, there is a sudden decline from the fifth to the sixth month (C to D)
- (b) Explain the requirements for the cotton plant within the following periods
- A-B (1½ marks)
 - The water requirement is low due to less developed roots, and leaves
 - Physiological process that need water i.e. photosynthesis is minimal
 - C (1½ marks)
 - The water requirement increase steeply due to increased metabolic processes like photosynthesis and growth i.e. vegetative/boll formation that require much water.
 - Increases absorption due to extensive root development
 - Increased transpiration water loss due to developed shoot system
 - C – D (1½ marks)
 - Sharp decline in water requirement is due to senescence and decline in physiological processes that require water.
 - Emergency of pests and diseases
 - Reduced transpiration

- (c) Explain what would happen if the water supply remained high from point C onwards. (2½ marks)
- Rapid increase in pests and disease
 - Cotton bolls/lint would rot due to high moisture
34. A crop of maize seedling was sprayed with concentrated liquid fertilizer. Later, the seedlings began to wilt, but recovered when it rained. After one week, a nearby pond had developed a thick covering of green algae. Later, many fish in the pond died, usually at night. From this information, give an explanation for each of the following observations.
- (a) Wilting of seedlings (02marks)
Due to osmotic loss water from the seedlings
- (b) Recovery of seedlings from wilting (02marks)
Rain diluted the fertilizers allowing osmotic uptake of water
- (c) Growth of algae in the pond (02marks)
Growth of algae was promoted by fertilizers that leached to the water body
- (d) Death of fish, especially at night. (04marks)
Fish died due to suffocation because aerobic respiration of algae at night and aerobic respiration of decomposers of dead algae.
35. (a) Give five consideration that should be made in the construction of a maize crib. (05marks)
- Raise floor to avoid dampness
 - Preserved pillars to reduce pest damage
 - Proper ventilation
 - Leak free roof
 - Security from theft
 - Lockable door to prevent intruders
 - Floor for easy cleaning
- (b) Outline five factors to consider when selecting the types of construction material to use on a farm.
- Cost of construction material, cheaper materials are preferred.
 - The durability; durable materials are preferred
 - Technology needed
 - Availability of the material
 - Capital to purchase building materials and pay labour.
 - Farmers preference of the material
 - The strength of the materials/ability to resist stress and strain
 - The ease to work with the materials e.g. painting, vanishing, oiling
 - The type/nature of the material e.g. plastic, wood, metal etc.
 - Portability and ease to transport
 - Skilled to be used

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Thanks

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