



Dr. Blosa Science

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UACE P515/1 Principles and practices of agriculture 2004

SECTION A (30 MARKS)

Write the letter corresponding to the correct answer

- Which one of the following is the most cost effective method of irrigating land of low gradient?
 - Furrow irrigation
 - Trickle irrigation
 - Sprinkler irrigation
 - Flood irrigation
- Newly born calves are not grazed because
 - the rumen is not developed until 8 weeks
 - the rumen is still small and lacks the necessary micro-organisms
 - forage is not palatable to young calves
 - forage would reduce their appetite for colostrum
- Citrus farmers are advised to remove citrus flowers in the first 2 years of the tree growth in order to
 - Promote the strength of the branch framework
 - Encourage more flower formation in subsequent years
 - Eliminate pest that damage the fruits
 - Prevent the occurrence of early decline of citrus fruits.
- Which one of the following represents stages which materials go through to form soil
 - Translocation → disintegration → decomposition
 - Decomposition → translocation → translocation
 - Disintegration → translocation → decomposition
 - Disintegration → decomposition → translocation
- The main objective of caponizing birds is to
 - Sterilize them
 - Reduce vices among birds
 - Make them grow faster
 - Open up the clogged cloaca
- The main source of estrogen in non-pregnant cow is the
 - Placenta
 - Corpus luteum

- C. Ovary tissue
 - D. Anterior pituitary gland
7. Rotting of cotton bolls is most commonly a result of
 - A. Black arm
 - B. Fusarium wilt
 - C. Lack of potassium in the soil
 - D. Die-back
 8. The type of mould board preferred in a sticky ground is
 - A. Stubble
 - B. Sweep
 - C. General purpose
 - D. slated
 9. A typical concrete mixture for constructing columns consists of cement, sand and gravel in ratio of
 - A. 2:2:3
 - B. 1:2:3
 - C. 1:4:6
 - D. 4:5:6
 10. Which of the following region of the light spectrum is most absorbed by green plants
 - A. Red
 - B. Green
 - C. Blue
 - D. yellow
 11. The monetary value attached to the farmer's own labour and management
 - A. an explicit cost
 - B. a variable cost
 - C. an implicit cost
 - D. a marginal cost
 12. Which of the following statement is true of relationship between supply, demand and price of commodity
 - A. When demand decreases and supply remains constant, the price increases
 - B. When demand increases and supply remains constant, price falls
 - C. When supply increase and demand falls, the price rises
 - D. When supply increases and demand remains constant, the price falls
 13. Which one of the following best describes a dead furrow?
 - A. The uncultivated area of land during plough
 - B. Soil cut, lifted and inverted by the plough
 - C. Open trench left between two adjacent plough area
 - D. Unploughed land left between two adjacent plots
 14. A tractor battery that is not in use for a long period should be
 - A. placed on wood but not on floor
 - B. topped up with distilled water and have the terminals cleaned
 - C. emptied and placed upside down

- D. charged regularly and periodically
15. In an experiment, a boar weighing 20kg was given 240kg of feed. The final weight of boar was 100kg. Which one of the following is the feed conversion ratio for the boar?
- A. 1:3
 - B. 3:1
 - C. 1:5
 - D. 4:1
16. Which one of the following is the least important factor in choosing a good building site on a farm?
- A. The farmer's personal interest
 - B. Source of water
 - C. Soil properties
 - D. accessibility
17. Which one of the following is not a marketing function
- A. Location of buyer
 - B. Collection of product at a point
 - C. Risk taken during transfer of ownership
 - D. Consumption of produce
18. A hybrid results from
- A. self-fertilization of individuals
 - B. crossing closely related individuals with recessive traits
 - C. back –crossing individuals having recessive traits
 - D. crossing unrelated individuals of the same species
19. Which one of the following soil pH encourages flocculation?
- A. 2
 - B. 12
 - C. 7
 - D. 4
20. In animal improvement, selection is done in order to
- A. increase the number of desirable genes
 - B. reduce the effect of epistasis in offspring
 - C. sustain the number of desirable genes
 - D. reduce gene mutation
21. Which one of the following would be the opportunity cost of growing vanilla with a net income of four million shilling instead of maize with a net income of two million shillings on the same acreage of land?
- A. 6million
 - B. 2million
 - C. 3million
 - D. 4million
22. A metal which is able to withstand shock loads without permanent damage or breakage is said to be
- A. Ductile
 - B. Hard

- C. Tough
 - D. Malleable
23. The Albar varieties of cotton grown in Uganda were developed for resistance against
- A. harsh environmental condition
 - B. American bollworm
 - C. Major fungal disease
 - D. Black arm disease
24. The reason for excluding air in the processing of silage is to
- A. Reduce over-drying
 - B. Promote the activity of aerobic bacteria
 - C. lower decomposition rate of the material
 - D. encourage the production of acidic medium in the silage
25. Which one of the following is the target organ for the action of luteinizing hormone?
- A. Mammary gland
 - B. Uterus
 - C. Placenta
 - D. Ovary
26. Rubber materials are best preserved by keeping them
- A. in shade
 - B. smeared with oil
 - C. in water
 - D. in area with little air
27. The main function of amniotic fluid to a foetus is to
- A. protect the foetus
 - B. convey nutrients to the foetus
 - C. help in removal of waste products
 - D. help in gaseous exchange
28. Small dark spots which develop into holes on bean leaves is likely to be a symptom of
- A. angular leaf spot
 - B. bean rust
 - C. bacterial blight
 - D. bean anthracnose
29. Which one of the following metals is best for coating milk tins?
- A. Lead
 - B. Tin
 - C. Brass
 - D. Zinc
30. Alluviation in soil refers to
- A. Leaching of minerals
 - B. Deposition of colloidal materials
 - C. Downward movement of colloidal materials
 - D. Dissolution of mineral salts

SECTION B

Answer all questions

31. (a) Differentiate between an agricultural credit scheme and a subsidy scheme. (02marks)
(b) Outline ways in which subsidy schemes promote agricultural production. (04marks)
(c) State reasons why a farmer may need credit. (04 marks)
32. (a) Explain why heavy duty oils are good for lubricating tractors engine (01 mark)
(b) Outline five functions of lubricating the tractor engine. (05marks)
(c) Give four ways of maintaining the lubrication system in good working conditions. (04marks)
33. (a) Differentiate between sterility and infertility as used in animal production (02marks)
(b) Outline four measures that could be taken to maintain high breeding efficiency in cattle. (04marks)
(c) Give four signs of pregnancy in cattle. (04marks)
34. (a) Give three reasons why young plant materials decompose faster than mature ones. (03marks)
(b) Outline four ways in which organic matter can improve soil fertility. (04marks)
(c) Give three ways in which organic matter contributes to soil conservation. (03marks)
35. (a) Give four ways of controlling cassava mosaic. (04marks)
(b) State three advantages and three disadvantages of root crops

Suggested answers

- 1.D 4D 7B 10A 13C 16 B 19C 22C 25D 28A
2A 5C 8D 11C 14D 17D 20A 23A 26A 29B
3A 6C 9B 12D 15B 18D 21B 24D 27A 30B

Comment

$$15. \text{ Feed conversion ratio} = \frac{\text{feed given}}{\text{weight gained}} = \frac{240}{100-20} = 3$$

SECTION B

Answer all questions

31. (a) Differentiate between an agricultural credit scheme and a subsidy scheme. (02marks)
Agricultural credit schemes give loan to farmers while subsidy scheme give incentives to the farmer usually in form of reduced prices.
- (b) Outline ways in which subsidy schemes promote agricultural production. (04marks)
- Stabilize price of agricultural products
 - Supplement farmers' income
 - Ensure that the domestic food supply is secure.

- Protect farmers from excessive loss in case of calamities

(c) State reasons why a farmer may need credit. (04 marks)

- For buying of planting materials
- Provision of farm building and other farm structure
- Finance treatment of farm animals
- Improve farm implements
- For paying salaries
- For expansion activities
- Sponsoring education and training

32. (a) Explain why heavy duty oils are good for lubricating tractors engine (01 mark)

Can with stand harsh operating conditions

(b) Outline five functions of lubricating the tractor engine. (05marks)

- Reduce friction
- Prevent wear
- Protect the engine from oxidation and corrosion
- Control temperature (dissipate heat)
- Transmit power
- Provide a fluid seal
- Cleaning-holding contaminants in suspension
- Dampening & cushioning of components under stress

(c) Give four ways of maintaining the lubrication system in good working conditions. (04marks)

- Change line filter (pressure filter) regularly
- Fix leaking or sweeping at all connections
- Replace worn out oil
- Replace damaged parts
- Avoid contamination of oil

33. (a) Differentiate between sterility and infertility as used in animal production (02marks)

Sterility is the inability to conceive whilst infertility is inability to complete a full term pregnancy and give birth to a healthy young one

(b) Outline four measures that could be taken to maintain high breeding efficiency in cattle. (04marks)

- Good feeding: Breeding animals should be fed well but excessive fattening should be avoided as it may reduce the fertility.
- Observing the rest period: Animals should be given a rest period of about 60 days to allow the uterus to return to normal
- Insemination at the right time: In case of artificial insemination, the cow should be inseminated towards the middle and late part of heat period as ovulation occurs 14 hours after the beginning of estrus.

- Observation of animals on heat: This should be done as early as possible more especially where artificial insemination is being used to avoid the animal missing service.
- Veterinary Attention: Animals that fail to conceive should be identified and examined to find out the causes and treated if possible.
- Pregnancy diagnosis: Animals should be diagnosed to find out whether they have conceived or not so that appropriate measures can be taken in time.
- Keep accurate breeding records for the herd to be used as reference were necessary
- Use teaser bulls for early detection of heat in farm animals for early service
- Maintain a good ratio of bulls to females to avoid over working the bulls which lowers fertility
- Use correct techniques of artificial insemination to ensure successful fertilization hence high breeding efficiency
- Females with abnormal discharges should be examined and treated early enough
- Know a complete breeding history of the animals before buying it into the farm

(c) Give four signs of pregnancy in cattle. (04marks)

- Failure of the animals to have heat after 21 days.
- Increase in the size of the belly more especially on the right hand side.
- A higher concentration of progesterone in milk and plasma 21 – 24 days after conception
- The cervix opening is sealed and closed by a gelatinous and tough secretion
- Udder tissues develop and enlarge especially in heifers at the 6th month of pregnancy
- At the later stage, the signs of life in the fetus can be felt after applying slight pressure on the right hand side of the belly
- Laboratory analysis of blood shows a higher level of progesterone in it

34. (a) Give three reasons why young plant materials decompose faster than mature ones. (03marks)

- Have low carbon nitrogen ratio
- Have high water content
- They are less fibrous

(b) Outline four ways in which organic matter can improve soil fertility. (04marks)

- Provide food and shelter for soil living organism
- Source of plant nutrients
- Buffers pH
- Reduce soil erosion by binding soil particles together
- Provide attachment sites for mineral ions
- The organic acids released during the process of organic matter breakdown promote weathering
- Promote soil drainage
- Improve soil texture

(c) Give three ways in which organic matter contributes to soil conservation. (03marks)

- Bind soil particles together reducing soil erosion
- Add nutrients to the soil
- Provide food to soil microorganisms
- Bind soil particles improving soil texture
- Increase water retention in sand soil
- Buffer soil pH
- Impart dark color to the soil that increase soil heat absorption
- Increase cation exchange capacity of the soil

35. (a) Give four ways of controlling cassava mosaic. (04marks)

- Plant resistant cassava
- Plant cuttings from health plants
- Burn or removed diseased crops from garden
- Spray with pesticides to kill the vector-whitefly

(b) State three advantages and three disadvantages of root crops (06marks)

Advantages of root crops

- Source of animals feeds
- Source of human food
- Fermentable to produce beverages.
- Source of vitamins e.g. cassava and carrots
- Source of medicines e.g. beetroots
- Source of sugar e.g. sugar beets

Disadvantages of root crops

- Root tubers are bulky
- Root tubers are perishable
- Cassava tubers have poisonous chemicals
- Root tubers contain high water contents.

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Thanks

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