



Dr. Blosa Science

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UACE P515/1 Principles and practices of agriculture 2003

SECTION A (30 MARKS)

Write the letter corresponding to the correct answer

- Which one of the following factors least affect the efficiency of basin irrigation
 - Topography
 - Type of crop grown
 - Source of water
 - Total area under crop enterprise
- Which of the following is not necessary condition for incubation of eggs?
 - Temperature of 26.4 – 39.40C
 - Relative humidity of 60%
 - Regular turning of eggs
 - Provision of light
- In fertilizer application, a residual effect occurs when a fertilizer
 - applied to one crop benefit the growth of a succeeding crop
 - applied to a crop is quickly leached out of soil
 - has a scotching effect on the crop
 - does not readily get absorbed into the soil
- Which one of the following would most influence a farmer's choice of crop to grow?
 - The level of soil fertility
 - The time the crop takes to mature
 - The availability of the market
 - The level of mechanization
- Which one of the following is not an advantage of mechanization
 - Improving quality of products
 - Easing labour bottlenecks
 - Ensuring uniformity of products
 - Increasing the rate at which a job is done
- The main reason for using tin to coat dairy equipment is that it
 - is resistant to corrosion
 - makes the surface easy to clean

- C. gives a shiny appearance
 - D. is cheap
7. Erratic running of a petrol engine may be caused by a faulty
- A. starting procedure
 - B. carburetor
 - C. ignition system
 - D. air supply
8. The composition of milk is affected by the
- A. Breed of the cow
 - B. Stage of lactation
 - C. Season of the year
 - D. Age of the cow
9. The advantage of keeping goats compared to other livestock is that goats
- A. help to eat the short grass in the pasture
 - B. do not require concentrate feeds
 - C. can tolerate diseases and parasites
 - D. are easier to market
10. The process of forming a dipeptide from amino acids is
- A. Reduction
 - B. Oxidation
 - C. Hydrolysis
 - D. Condensation
11. The main function of manure in soil conservation is to
- A. hold soil particles together
 - B. encourage fast crop growth to cover the soil
 - C. increase the activity of micro-organisms
 - D. provide a firm cover on the soil surface
12. Which one of the following is a characteristic of a good fertilizer distributor?
- A. having a specific rate of application
 - B. being easy to dismantle and clean parts
 - C. having a high application rate
 - D. being of strong and heavy parts
13. When a farmer buys a tractor, the type of cost incurred is referred to as
- A. a fixed cost
 - B. an explicit cost
 - C. an implicit cost
 - D. an opportunity cost
14. Which of the following function is carried out by a trap crop in the control of striga sp ?
- A. Stimulates germination of Striga seed
 - B. Uses nutrient that Striga survives on
 - C. Stimulates the growth of fungi that attack Striga
 - D. Smoothers the Striga plant

15. In pregnant animal, oestrogen is produced by
 - A. Mammary glands
 - B. Corpus luteum
 - C. Placenta
 - D. Ovarian follicles
16. Which one of the following is a limitation in the use of a spray race?
 - A. Nervousness of animals
 - B. Risk of poisoning with Acaricide spray
 - C. High rate of installing the spray race
 - D. Spray drift during spraying
17. Any solid object that is swallowed by a ruminant is usually isolated in
 - A. Rumen
 - B. Abomasum
 - C. Reticulum
 - D. omasum
18. Which one of the following pairs consists of supplementary products on a farm?
 - A. Chicken and dairy animals
 - B. Grass and legume in a pasture
 - C. Eggs and off-layer chicken
 - D. Crop and livestock
19. Efficiency of labour on a farm may be increased by
 - A. giving workers specific jobs to do
 - B. raising the work load for each worker
 - C. giving worker freedom to choose which jobs to do
 - D. giving workers enough time to rest
20. One reason why tea is not grown by many farmers in Uganda it that
 - A. the demand for tea is constant
 - B. one requires a large estate to grow it
 - C. it requires specialized skill to grow it
 - D. it is difficult to obtain planting materials
21. The best way to bring out traits in animals is by
 - A. Breeding healthy animals
 - B. Cross breeding
 - C. Outbreeding
 - D. Inbreeding
22. In making concrete, cement, sand and aggregate are mixed in varying proportions depending on the
 - A. type of sand used
 - B. type of construction work to be done
 - C. availability of cement, sand and aggregate
 - D. size of aggregate
23. The demand for agricultural commodity is least influenced by a rise in
 - A. income

- B. commodity price
 - C. quality of the commodity
 - D. supply of the commodity
24. In animal nutrition, the biological value of protein is the proportion of protein
- A. Digested and absorbed in the body
 - B. Absorbed and retained in the body
 - C. Used for growth
 - D. Used as energy source
25. During silage making, the addition of molasses help to improve
- A. palatability of silage
 - B. texture of silage
 - C. digestibility of silage
 - D. speed of fermentation in silage
26. The reason why soil ridging is done it to improve
- A. soil aeration
 - B. soil fertility
 - C. the temperature of the soil
 - D. the water holding capacity of the soil
27. Which one of the following does not affect the planting depth of seeds?
- A. Seed size
 - B. The amount of soil moisture
 - C. The level of soil fertility
 - D. The time of planting
28. Which one of the following is characterized by muscular spasm, uncoordinated movement and paralysis in cattle?
- A. Milk fever
 - B. Ketosis
 - C. Nitrate poisoning
 - D. Anaplasmosis
29. Which one of the following substances is responsible for controlling water loss from plant leaves
- A. Fatty acids
 - B. Wax
 - C. Glycerol
 - D. resins
30. Which of the following cultural practices would not efficiently control maize stalk borer?
- A. Burning maize remains after harvesting
 - B. Planting the maize crop early
 - C. Use of a closed season
 - D. Growing sorghum after maize

SECTION B

Answer all questions

31. (a) State what happens when an organism enters a state of dormancy. (02marks)
(b) Give three reasons to explain why dormancy is important. (03 marks)
(c) List five factors that cause dormancy in seeds. (05marks)
32. (a) State three factors that influence the temperature of the soil. (03marks)
(b) Explain the effect of temperature on soil productivity. (04marks)
(c) Explain three ways by which a farmer can modify soil temperature. (02marks)
33. (a) Explain five factors that affect the milk yield of a cow. (05marks)
(b) State five measures that a farmer can take to control mastitis in a milking heard. (05marks)
34. (a) What are the characteristics of a good farm record? (02marks)
(b) How can good record improve farming efficiency? (08marks)
35. (a) Give four tractor related causes of poor plough penetration. (04marks)
(b) Outline six advantages of tractor based mechanization. (06marks)

Suggested answers

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

SECTION B

31. (a) State what happens when an organism enters a state of dormancy. (02marks)

Reduced metabolic rate

(b) Give three reasons to explain why dormancy is important. (03 marks)

- enable organism survive harsh conditions
- allows time for seeds and fruits to disperse
- allows seed to mature before they can germinate

(c) List five factors that cause dormancy in seeds. (05marks)

- Seed coats impermeable to water
- Seed coat impermeable to oxygen
- Mechanically resistant seed coat
- Immaturity of the embryo
- Due to the effect of germination inhibitors:
 - Low temperature requirement for germination
 - Light sensitivity of seeds

32. (a) State three factors that influence the temperature of the soil. (03marks)

- Amount of soil radiation: high solar radiation increase soil temperature
- Soil colour: dark soil color absorbs heat and increases soil temperature
- Crop cover: plant cover lowers soil temperature
- Organic matter increases soil moisture retention and give a darker color to the soil increasing heat retention in the soil
- Soil moisture: retains heat in the soil
- Compositing release heat increasing soil temperature
-

(b) Explain the effect of temperature on soil productivity. (04marks)

- High soil temperature promotes activities of soil organisms such as nitrogen fixation
- High soil temperature promotes active uptake mineral soil
- High soil temperature promote decomposition and release of nutrients from organic matter
- High soil temperature increases water uptake
- **low** temperature discourages germination
- high temperature encourage drying of the soil
- **alternate** hot and cold temperature promotes weathering of soil

(c) Explain three ways by which a farmer can modify soil temperature. (02marks)

- Mulching lowers soil temperature
- Drainage increase soil temperature
- Planting of cover crops

33. (a) Explain five factors that affect the milk yield of a cow. (05marks)

- **Breed:** Friesians produce large amounts of milk but of low butter fat while the indigenous produce less milk of high butter fat.
- **Age:** older cows produce more milk than the young. However, the butterfat of the milk produced by the older cows is lower than that of the young cows.
- **Period of lactation:** milk yield increases until the 7th week then it starts declining up to drying off.
- **Animal Health:** sick animals give less milk which may also contain antibodies and drugs more especially after treatment.
- **Animal Temperament:** quiet animals are the best milkers while nervous cows which kick about give less milk.
- **Water Supply:** water is needed for the health of the cow and also in the manufacture of milk since it is 87% water. Provision of enough water increases milk yield
- **Food eaten:** animals fed on concentrates will produce more milk which is of better quality than those feed on the ration full of roughages.
- **Season of the year:** during the rainy season cows produce milk with high butter fat content. The quantity of milk is also high due to the abundant pastures and water.
- **Heat Period:** Oestrus causes a slight decline in milk production which may be due to the reduced feed intake. The butterfat content of the milk can also fluctuate by 1% above / below normal.
- **Temperature:** high temperatures reduce milk yield due to the increased evaporation of water of water from the animal's body.
- **Management:** proper feeding of animal and better handling during milking will increase the quality and quantity of milk produced. Rough handling leads to the increase of adrenalin and hence milk hold up.
- **Milking Interval:** the greater the number of milking times, the higher the amount of milk produced. However, morning milking produces milk with higher butter fat content.

(b) State five measures that a farmer can take to control mastitis in a milking heard. (05marks)

- The milker must ensure that his hands are clean before milking
- A strip up should be regularly used to test for mastitis
- Before milking, the udder should be washed with warm water and dried using a towel
- The farmer should pay more attention to soars on teats and prevent the plucking by using a milking salve
- The teat cups should be rinsed and disinfected immediately after milking each cow
- Animals suffering from mastitis should be treated promptly to stop the spread of the disease
- Infected animals should be milked last and the milk poured away.

34. (a) What are the characteristics of a good farm record? (02marks)

- Records should carry a date
- Records should be summarized
- Records should be clear, easy to read and understand
- Records should be classified and kept according to type

(b) How can good record improve farming efficiency? (08marks)

- Tracking animal and worker healthy
- Ensuring tax compliance
- Tracking revenue and expenses
- Financial requirements for lenders, government agencies and insurance
- Farm planning and forecasting based on previous performance
- Enable improvements on the farming methods
- Help detect fraudulent practices on a farm
- To show economic status of a farm
- Tracking management practices

35. (a) Give four tractor related causes of poor plough penetration. (04marks)

- Disc angle
- Tilt angle
- Disc sharpness
- Depth adjustment
- Tractor speed

(b) Outline six advantages of tractor based mechanization. (06marks)

- It is used for fast plowing and tilling
- It is used for fast planting
- It is used for fast harvesting
- It is used for removing heavy objects like tree stumps and stones
- It is used for fast transporting materials
- It is used for fast spraying fertilizers
- It is used for irrigating land
- It is used for mowing and brush hogging

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Thanks

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