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## UACE P515/1 Principles and practices of agriculture 2008

### SECTION A (30 MARKS)

Write the letter corresponding to the correct answer

- The function of droppers in fencing
  - Support the strainer
  - Prevent the wires from sagging
  - Prop up the struts
  - Support the standard
- Which one of the following glands is responsible for release of oxytocin hormone?
  - Pancreas
  - Adrenal gland
  - Pituitary gland
  - Thyroid gland
- Which one of the following is not a preventive measure in control of animal diseases?
  - Quarantine
  - Use of disinfectant
  - Vaccination
  - prophylaxis
- soil that is fully wetted and allowed to drain freely is said to be
  - saturated
  - at wilting point
  - a field capacity
  - water logged
- Which one of the following represents the correct sequence of stages in the development of spermatozoa
  - Primary spermatocyte → secondary spermatocyte → spermatids
  - Primordial germ cells → Primary spermatocyte → secondary spermatocyte
  - Primary spermatocyte → spermatids → secondary spermatocyte
  - Primordial germ cells → secondary spermatocyte → spermatids
- A translocated, selective herbicide is best applied

- A. Before planting
  - B. At planting
  - C. When weeds are flowering
  - D. When weeds have just emerged
7. Which one of the following measures can control fluctuations in the prices of agricultural products?
- A. Diversification
  - B. Contract farming
  - C. Specialization
  - D. Intensive farming
8. Brass is used in moving parts of machines because it
- A. does not wear easily
  - B. is good conductor of heat
  - C. is a good conductor of electricity
  - D. is resistant to corrosion
9. Standardization in agricultural marketing refers to
- A. putting products of the same kind together
  - B. grading of products
  - C. processing of agricultural products
  - D. making quality specification used in grading
10. Which one of the following statements is **correct** about camshaft?
- A. It is connected to the valves by connecting rods
  - B. It revolves much faster than crankshaft
  - C. It controls the opening and closing of valves
  - D. It controls the movement of pistons
11. Seed dormancy due to anatomical state of the seed may be caused by
- A. impermeable seed coats
  - B. embryo immaturity
  - C. presence of inhibitors
  - D. oxygen lack
12. In the nitrogen cycle, nitrogen is released from organic compounds by the process of
- A. nitrification
  - B. volatilization
  - C. denitrification
  - D. mineralization
13. Which one of the following does not determine the interest rate on credit?
- A. Demand for credit
  - B. Supply of money for loaning
  - C. Size of the credit
  - D. Assets of the borrower
14. Trips and scales are
- A. Biting pests
  - B. Chewing pests

- C. Sucking pests
  - D. Hurting pests
15. Composite varieties of maize are produced by
- A. Open pollination of several inbred lines
  - B. Crossing inbred lines using controlled pollination
  - C. Crossing varieties of diverse genetic composition
  - D. Mass selection
16. When a super-phosphate fertilizer is applied to a clay soil, crops may not show positive response mainly because
- A. Phosphate get fixed into soluble minerals once in the soil
  - B. Clay soil are usually water logged and so dissolve the phosphates
  - C. Phosphate uptake by the crops is antagonized by the presence of other clay minerals
  - D. Clay soil encourages leaching of phosphates
17. Which one of the following enzymes is produced as inactive precursor?
- A. Sucrose
  - B. Lipase
  - C. Pepsin
  - D. amylase
18. Pulping coffee refers to the removing of the
- A. red fleshy outer skin from the cherry
  - B. parchment from cherry
  - C. mucilage from the cherry
  - D. coffee husks from the cherry
19. Figure 1 is a longitudinal section of a root apex

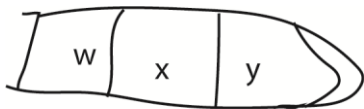


Fig. 1

What is the main activity that take place in region x?

- A. Differentiation
  - B. Meiotic cell division
  - C. Cell expansion
  - D. Mitotic cell division
20. In a profit and loss Account, the items under closing valuation are reflected as total
- A. expenditure during that year
  - B. value of all the assets on the farm at the end of the year
  - C. liabilities of the farm during that year
  - D. value of all transactions during that year
21. Which one of the following are utilizable by-products resulting from microbial fermentation in the rumen?

- A. Glucose
  - B. Alcohol
  - C. Acetic acid
  - D. Carbon dioxide
22. The peak water requirements for a cotton crop is when
- A. it is the flower ignition stage
  - B. the boll are forming
  - C. it is at vegetative stage of growth
  - D. it is nearing maturity
23. Which one of the following nutrients has the highest amount of potential energy per unit weight
- A. Proteins
  - B. Vitamins
  - C. Carbohydrates
  - D. fats
24. The digestible crude protein of a feed is a measure of the
- A. nitrogen in feed consumed, which is retained in the body
  - B. total nitrogen in a feed
  - C. total amount of protein in a feed
  - D. total amount of protein in feed consumed which is defecated
25. The uptake of mineral salts from the soil by plant roots occurs through the process of
- A. Active transport
  - B. Osmosis
  - C. Mass flow
  - D. Cytoplasmic streaming
26. Which one of the following is not a mounted tractor implement?
- A. Mould board plough
  - B. Disc hallow
  - C. Fertilizer distributor
  - D. Disc plough
27. Which one of the following is not regarded as an asset on a balance sheet?
- A. Capital at the bank
  - B. Net capital
  - C. Cash from the sale of crops
  - D. Debts received
28. Which one of the following diseases attacks both poultry and rabbits?
- A. New castle
  - B. Coccidiosis
  - C. Gumboro
  - D. Bacillary white diarrhea
29. The use of closed season is not an effective method of controlling American ball worm in cotton because the boll worm
- A. undergoes dormancy and can survive during the closed season

- B. is well adapted to survive adverse conditions
  - C. has large number of alternative host
  - D. produces many eggs which enable it to survive
30. Which one of the following is implicit cost?
- A. Tax on farm income
  - B. Insurance for farm assets
  - C. Supervision by the farmer
  - D. Cost of inputs

## SECTION B

Do all questions

31. Table 1 shows the concentration in parts per million (ppm) of a pesticide in the bodies of some organisms in an area, 20 years after the use of pesticide. Use the information to answer the questions that follow

Organism	Concentration (ppm)
Phytoplankton	0.04
Zooplankton	0.23
Tilapia	2.07
Fish eagle	13.80

- (a) From the data, explain the concentration of the pesticide in the phytoplankton in relation to that in fish eagle. (05marks)
  - (b) From the information, what can be deduced about the type of pesticide used? (02marks)
  - (c) Explain the characteristics of a good pesticide(03marks)
32. (a) Give four reasons why a farmer may change from one enterprise to another (02marks)
- (b) Explain four factors that affect the efficiency on the farm (08marks)
33. (a) State four characteristics of a natural pasture that needs improvement. (04 marks)
- (b) Outline six factors to consider when selecting species for establishment of grass pasture. (06marks)
34. (a) Explain importance of the following processes of timber treatment.
- (i) seasoning (03marks)
  - (ii) preservation (03marks)
- (b) Outline four advantages of using timber over metal as building material (04marks)
35. (a) Outline the procedure of training a calf to drink from a bucket. (04marks)
- (b) Give three advantages of bucket feeding. (03marks)
- (c) Give three precautions that must be taken when using bucket feeding. (03marks)

**Suggested answers**

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

**SECTION B**

31. Table 1 shows the concentration in parts per million (ppm) of a pesticide in the bodies of some organisms in an area, 20 years after the use of pesticide. Use the information to answer the questions that follow

Organism	Concentration (ppm)
Phytoplankton	0.04
Zooplankton	0.23
Tilapia	2.07
Fish eagle	13.80

(a) From the data, explain the concentration of the pesticide in the phytoplankton in relation to that in fish eagle. (05marks)

The consumers at each trophic level feed on several organisms from the lower trophic level accumulating pesticide from them. The pesticide is not broken down in body tissues that it progressively increases along the trophic level giving high concentration in tertiary consumers like fish eagle

(b) From the information, what can be deduced about the type of pesticide used? (02marks)

It is non-biodegradable because it accumulates

(c) Explain the characteristics of a good pesticide(03marks)

- toxic to the target organism to kill them
- specific to the target organism not to kill useful organisms in ecosystem
- biodegradable not to accumulate in the environment
- harmless to the plants and animals
- cheap and readily available to reduce the cost of farming
- easy to store and transport to reduce the cost of farming
- readily soluble in water to be easily applied

32. (a) Give four reasons why a farmer may change from one enterprise to another (02marks)

- To increase profitability
- To respond to market changes
- To avoid high cost of inputs
- Due to loss of soil fertility

(b) Explain four factors that affect the efficiency on the farm (08marks)

- Good management through proper decision making

- Selecting proper and marketability varieties
- Application of fertilizers to increase plant yield.
- Planting early maturing crop varieties to fetch good price
- Irrigation to produce crops throughout the year
- Pest control to reduce farm losses
- Use of skilled labor to produce quality products
- Use of specialized extension service
- Fencing to ensure safety of the farm
- Proper record keeping to enable proper farming
- Proper feeding of farm animals.
- Proper housing of farm animals
- Timely weeding
- Proper spacing of crops
- Castration, dehorning, and debeaking to improve farm production
- Processing of farm product/value addition

33. (a) State **four** characteristics of a natural pasture that needs improvement. (04 marks)

- Presence of poor unproductive pasture plant
- Poor conditions of the livestock (emaciated) grazing on the pasture
- Presence of large and undecayed plant residues that prevent water entry
- Livestock hunting for palatable pasture
- Wet areas containing marshy plants e.g. nut grasses
- Over growth of pasture hence becoming fibrous
- The pasture become stunted
- Development of bare patches in pasture
- Accumulation of parasites in pastures.

(b) Outline six factors to consider when selecting species for establishment of grass pasture. (06marks)

- It should be easy to establish hence reducing cost involved in replacing the seeds that failed to establish.
- It should be able to provide herbage even in times of scarcity
- It should be drought resistant. In order to meet this deep rooted species are always preferred.
- It should be easy to manage i.e. easy to plant, weed and harvest.
- It should be highly palatable so that the animals can take it.
- Should match with the nutrient requirement of animal.
- It should show a high resistance to grazing i.e. the species should be able to regenerate after grazing and persist for at least three years.

- It should be highly resistant to pest and diseases that can attack the pasture.
- Should be able to produce a large quantity of dry matter in a year for the animals to graze on.
- It should have a suitable height from the ground to allow easy grazing by the animal.
- It must be a pasture that can be easily mixed with other pasture species without having any effect on them or being affected.
- It should have readily available seeds that can be used for propagation.

34. (a) Explain importance of the following processes of timber treatment.

(i) seasoning (03marks)

- Make timber easily workable and facilitate operations during conversion.
- Maintain the shape and size of the component of the timber article which is expected to remain unchanged in shape.
- Reduced weight, making it easier to carry
- Increased resistance to fungi and insects' damage
- Easy to polish and paint
- Increased strength and durability
- Easy to burn

(ii) preservation (03marks)

- increase durability
- increase market value
- increase number of uses to wood
- protect wood from adverse weather condition

(c) Outline four advantages of using timber over metal as building material (04marks)

- It is readily available
- It is light to lift and transport
- Cheap to buy
- Easy to cut and mould into shape
- Good insulator

35. (a) Outline the procedure of training a calf to drink from a bucket. (04marks)

- The calf should be removed from the dam three days after birth to ensure colostrum intake.
- Immediately after milking, the bucket with the milk should be presented to the calf for training.
- Wash your hands with clean water and soap and dry it using a clean hand towel
- The trainer should dip the index and middle fingers in the milk and later place it in the calf's mouth to suckle.
- The calf suckles the fingers as the trainer lowers the hand in the bucket containing milk.

- As the mouth of the calf approaches the milk in the bucket containing milk, the fingers are removed slowly to allow the calf to drink milk.
- The calf begins slowly to drink the milk
- Training can be repeated until the animal learns

(b) Give three advantages of bucket feeding. (03marks)

- It is easy to keep feeding records that can be referred to in any case since the amount of milk taken is known
- Calves are rationed according to their body weight and healthy status
- Reduces risk of transmission of diseases from dam to calf.
- The farmer can introduce milk substitutes easily and therefore save milk for market.
- The method permits early weaning which can save milk
- The dam will give milk even when the calf dies
- Drugs to calf can easily be given through milk in the bucket.

(c) Give three precautions that must be taken when using bucket feeding. (03marks)

- The calf should not be allowed to drink in large quantities at a go as the milk can choke it or enter the undeveloped rumen where it would ferment causing digestive disturbances.
- The calf should be fed from a clean bucket to avoid infection
- Milk should be at the body temperature to avoid digestive disorders
- Calf should be fed on regular interval with appropriate amount for proper growth.
- The trainer's fingers should be clean to avoid infections

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**Thanks**

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