



Dr. Blosa Science

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UACE P515/1 Principles and practices of agriculture 2011

SECTION A (30 MARKS)

Write the letter corresponding to the correct answer

- In which meiotic phase does crossing over occur?
 - Metaphase
 - Anaphase
 - Prophase
 - Telophase
- Which one of the following is an advantage of sub-surface drainage?
 - Leaves the field free of obstruction
 - It is cheap to construct
 - It does not require maintenance
 - It minimize leaching
- Which one of the following is a method used to generate heat in the human body?
 - Vasoconstriction
 - Raising body hair
 - Insulation by the subcutaneous fat
 - Shivering
- Which one of the following is a method of preventing anthrax on a farm?
 - Isolation of affected animals
 - Burning the carcasses of infected animal on site
 - Culling of infected animals
 - Spraying the animal with Acaricide
- Which one of the following is an advantage of the agobiada system of pruning coffee? It
 - encourage sprouting, giving higher yields
 - can be used to stake plant
 - prevents pests and disease attack
 - allows light to reach the lower part of the plant
- Which one of the following does not improve farm productivity?
 - Use of farm machinery

- B. Keeping farm records
 - C. Good management skill
 - D. Growing crops on a large scale
7. The following are correct about meristematic tissue except
 - A. they have small immature cells with thin walls
 - B. their cells lack chloroplasts
 - C. they are distributed in growing regions
 - D. their cells divide meiotically
 8. the ability of a material to withstand stress is referred to as
 - A. strain
 - B. strength
 - C. toughness
 - D. hardness
 9. Which one of the following is responsible for storage of oxygen in muscles?
 - A. Hemoglobin
 - B. Myosin
 - C. Myoglobin
 - D. Casein
 10. It is not advisable to grow a pest tolerant crop variety because it
 - A. encourages a buildup of the pest population
 - B. builds up resistance in the pest
 - C. encourages migration of pests to other crops
 - D. reduces the quality of the crop product
 11. Which one of the following encourages dumping off of seedlings?
 - A. Delay in transporting seedlings
 - B. low soil fertility
 - C. Excessive soil moisture
 - D. Wide spacing of seedlings
 12. Which of the following is the effect of raising the price of a product above the equilibrium price?
 - A. More of the product is offered for sale
 - B. Demand for the product increases
 - C. Less of the product is offered for sale
 - D. Demand for the product does not change
 13. During emergence from the soil, plumule tips are bent back because
 - A. the plumule tips are geotropic
 - B. this helps the coleoptile break open
 - C. the plumule growth is slow
 - D. this prevents damage of the shoot tips by soil
 14. The phenotype resulting from a cross between birds with deep red wattle and those with light red wattle depends on which parent is deep red wattled. This means that the gene for wattle color is
 - A. polygenic
 - B. sex linked

- C. homogametic
 - D. sex limited
15. The following is predisposing factors for mastitis except
- A. Stripping while milking
 - B. Poor milking hygiene
 - C. Injury to the milk udder
 - D. Delayed milking
16. Which one of the following encourages the development of late blight in tomatoes?
- A. Excessive light
 - B. High soil temperature
 - C. High humidity
 - D. High soil moisture
17. Which one of the following characteristics of water does **not** contribute to weathering
- A. Expansion during freezing
 - B. Ability to dissolve most natural materials
 - C. Having a high specific heat capacity
 - D. Ability to flow into narrow cracks and crevices
18. Which one of the following is the role of cristae in a cell?
- A. Synthesizing ATP
 - B. Increasing surface area for ATP formation
 - C. Storing chemicals for ATP production
 - D. Breaking down ATP to release energy
19. The exit race of cattle dip slant backwards in order to
- A. allow animals move in a single file
 - B. clean the animal hooves
 - C. allow Acaricide from animals flow back into the dip tank
 - D. slow down the speed of animal exit from the dip
20. The number of animals in a given area of pasture land irrespective of available herbage is the
- A. Stocking rate
 - B. Set stocking
 - C. Carrying capacity
 - D. Grazing intensity
21. Which one of the following is not a method of minimizing parasite infestation in pastures?
- A. Fencing
 - B. Rotation grazing
 - C. Draining pasture
 - D. Drenching animals regularly
22. The following are characteristics of an agro-forestry tree **except** it
- A. does not compete with crops for nutrients
 - B. has spreading and thick canopy
 - C. can regenerate easily after coppicing
 - D. does not take up much space

23. The following are considered when determining the amount of lime to apply to soil **except**
- A. profile of the soil
 - B. percentage of base saturation in the soil
 - C. texture of the soil
 - D. fineness of the lime to be applied
24. cotton and maize should not follow each other in crop rotation because they
- A. are attacked by similar diseases
 - B. are both difficult to weed
 - C. are both heavy feeder
 - D. provide poor soil cover
25. The oxygen produced during the light stage of photosynthesis comes from the breakdown of
- A. carbon dioxide
 - B. NADP
 - C. Water
 - D. chlorophyll
26. One advantage of annealing steel is that it
- A. makes it easier for drilling purpose
 - B. increases its carbon content
 - C. hardens it for better strength
 - D. makes it act as a solder
27. Which one of the following is a likely solution to risks in agricultural credits?
- A. Charging high interests
 - B. Presenting collateral in form of sale
 - C. Giving credit in cash to encourage its fast utilization
 - D. Number of animals kept by farmers
28. Which one of the following least influences land tenure system?
- A. Population density and pressure on land
 - B. Political and social organization of the people
 - C. Economic situation and level of development
 - D. Number of animals kept by farmers
29. One disadvantage of an absorption bank is that
- A. the lower part of the field may dry up
 - B. soil erosion is not effectively controlled
 - C. the stones from which they are made encourage sedimentation
 - D. the channel can fill up and overflow to flood field
30. Which one of the following is a fixed cost
- A. Guarding services
 - B. Workers' pay
 - C. Ground rent
 - D. Opportunity cost of resources

SECTION B

Answer all questions in the spaces provides

31. (a) Give **three** reasons why inbreeding is used in farming (03marks)
(b) Outline **three** characteristics to be considered when selecting dairy animals for breeding. (03marks)
(c) Describe **four** methods used to select farm animals for breeding. (04marks)
32. (a) Explain **six** ways in which a farm record is important. (06marks)
(b) Suggest **four** practices of good farm record –keeping (04marks)
33. (a) State **six** ways with which excess water affects soil. (06marks)
(b) Outline **four** ways of ensuring safe water for farm animals. (04marks)
34. (a) Explain six ways through which crop diseases spread on farms. (06marks)
(b) Suggest four conditions necessary for successful disease infection of a crop in a field? (04marks)
35. (a) Explain how the following factors affect physical weathering of rocks.
(i) Temperature (03marks)
(ii) Living organisms (03marks)
- (b) Explain how the following processes lead to chemical weathering of rocks. (04marks)
- (i) Oxidation
(ii) Hydration
(iii) Hydrolysis
(iv) carbonation

Suggested answers

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

Comments

11. Dumping of is a disease of seedlings causes by several different fungi and fungi-like organisms. The disease causes emerging seedling to collapse, often submerged in a mass of white fungal growth

SECTION B

31. (a) Give **three** reasons why inbreeding is used in farming (03marks)
- Preserves desirable characteristics in animal herd
 - It can be used to identify and cull animals with undesirable characteristics from herd
 - It increases the homozygosis/similarities in the herd for desired characteristics
 - It used to develop pure lines that are used to produce hybrids

(b) Outline **three** characteristics to be considered when selecting dairy animals for breeding. (03marks)

- High milk production
- Long milking period
- Early maturity
- Resistance to disease

(c) Describe **four** methods used to select farm animals for breeding. (04marks)

- Inbreeding or mating close relative e.g. son and sister; to increase number of identical genes for desirable characteristics
- Line breed or mating of closely related animals but from different parental lines e.g. grand daughter and grandson. It enable breeder to keep offspring closely related to an outstanding ancestor but avoiding the problems associated with inbreeding
- Outbreeding or mating of unrelated animals to increase heterozygosis and hybrid vigour.

32. (a) Explain **six** ways in which a farm record is important. (06marks)

- 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

(b) Suggest **four** practices of good farm record-keeping (04marks)

- 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

33. (a) State **six** ways with which excess water affects soil. (06marks)

- Insufficient supply of oxygen, which slows or stops plant growth.
- Accumulation of carbon dioxide, which impedes the growth of plant roots.
- Inhibition of aerobic respiration, limiting energy metabolism and restricting growth and developmental processes.
- Promotes denitrification leading loss of soil fertility
- Leads to accumulation of toxins in the soil
- Promotes rotting of roots
- Photosynthesis decline due to closure of stomata, degradation of chlorophyll

(b) Outline **four** ways of ensuring safe water for farm animals. (04marks)

- Ensure animals drink from clean containers

- Protect nature source of water from contamination with dung, herbicides and pesticide
- Provide quality domestic water
- Provide water from boreholes

34. (a) Explain six ways through which crop diseases spread on farms. (06marks)

- Through wind/air current blow spores from one diseased crop to another
- Through rain splash
- Contact between health and diseased plant
- Infected planting materials/seedlings/cuttings
- Pruning knives, pangas carry disease causing organisms
- Transfer of disease causing organisms by pests and vectors
- Irrigation with contaminated water
- Application of infected mulches
- Through infected crop wastes/residues
- Through infected organic manure
- Through contact with infected animals

(b) Suggest four conditions necessary for successful disease infection of a crop in a field? (04marks)

- There must be pathogen host contact
- Plant must be susceptible to the pathogen
- The pathogen must be in pathogenic stage
- Presence of favorable temperature
- Favorable humidity

35. (a) Explain how the following factors affect physical weathering of rocks.

(i) Temperature (03marks)

When rocks are heated, they expand unevenly between their layers. A change in temperature will set up stresses which will result into breaking of rocks. The alternative heating and cooling results into rapturing of rocks.

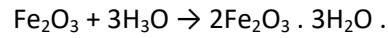
(ii) Living organisms (03marks)

- Plant roots penetrate and break roots into pieces
- Some organ produce acidic solutions that dissolve rocks
- Animal hooves break rocks into pieces during movement

(b) Explain how the following processes lead to chemical weathering of rocks. (04marks)

(i) Oxidation

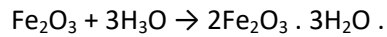
This occurs when water combines with minerals, silicates and oxides of iron or aluminum to form hydrated compounds e.g.



The hydrated compound are softer than the original rock and therefore easily worn away.

(ii) Hydration

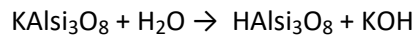
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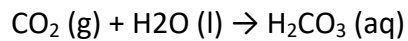
(iii) Hydrolysis

This is the use of water to break up chemical bonds of a particular compound e.g



(iv) carbonation

Water and carbon dioxide combine to form a weak carbonic acid which reacts with oxides of calcium and magnesium to form carbonate and bi-carbonates.



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