



Dr. Blosa Science

Sponsored by
The Science Foundation College
Uganda East Africa
Senior one to senior six
+256 778 633 682, 753 802709
Based On, best for science

digitalteachers.co.ug



 Nurture your dreams 

UACE P515/1 Principles and practices of agriculture 2013

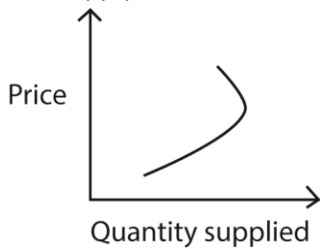
SECTION A (30 MARKS)

Write the letter corresponding to the correct answer

1. Stocking rate refers to the number of animals
 - A. per unit area of land
 - B. in a grazing area
 - C. per unit area of available herbage
 - D. in excess of available pasture
2. The reason for using galvanized iron in construction is because it
 - A. is strong
 - B. appears attractive
 - C. resist corrosion
 - D. cheap
3. An animal should be given plenty of water before slaughter so as to
 - A. make skinning easy
 - B. ensure complete bleeding
 - C. delay meat putrefaction
 - D. remove of all bowel content
4. Diversification in farming is beneficial because it
 - A. increase yield
 - B. ease marketing of farm products
 - C. improve the efficiency of resource utilization
 - D. ease management
5. One disadvantage of sprinkler irrigation is that it
 - A. Supplies little water to the soil
 - B. Encourages leaching
 - C. Takes up a lot of useful land
 - D. May harden the top soil
6. Seed inoculation is carried out to
 - A. break seed dormancy
 - B. promote nitrogen fixation

- C. encourage easy rooting in germinating seeds
- D. protect seeds from pest attack

7. The supply curve shown in figure 1 represents



- A. supply in subsistence agriculture
 - B. a normal supply curve
 - C. a supply curve for luxury goods
 - D. supply of labor
8. Digestible energy refers to the total energy
- A. in in the feed minus the energy lost in feces
 - B. contained in the feed consumed by the animal
 - C. in the feed minus the energy lost in urine
 - D. that is absorbed in the body of an animal
9. Which one of the following does not favor the transmission of crop diseases by pathogens?
- A. Virulence of the pathogen
 - B. Susceptibility of the host plant
 - C. Low temperature
 - D. Pathogen-host contact
10. The pressure that tends to force water out of a plant cell is the
- A. Osmotic pressure
 - B. Turgor pressure
 - C. Water potential
 - D. Pressure potential
11. The following are aspects of land reforms except
- A. Redistribution of land rights
 - B. Land tenure
 - C. Resettlement
 - D. Land consolidation
12. Crops and livestock using the same land is an example of
- A. Competitive products
 - B. Joint products
 - C. Complementary products
 - D. Supplementary products
13. Which of the following stimulates milk-let down
- A. Milking the cow once a day
 - B. The presence of a bull
 - C. Excitement

- D. Washing the adder with warm water
14. Which one of the following conditions is unsuitable for use of an ox-plough?
- A. Flat land
 - B. Sandy soil
 - C. Area with short vegetation
 - D. Heavy soil
15. The purpose of root pruning in management of agro-forestry trees is to
- A. reduce nutrient uptake
 - B. reduce the number of leaves formed
 - C. prevent lateral extension of roots and reduce competition with other plants
 - D. allow the plant to get nutrients from deeper layers of the soil
16. Which one of the following does **not** influence bulk density of soil?
- A. Organic matter
 - B. Soil texture
 - C. Soil temperature
 - D. Soil depth
17. Which one of the following least affects the method of irrigation to use
- A. Water supply
 - B. Type of soil
 - C. Topography
 - D. Type of crops grown
18. Most vegetables crops are established in a nursery and transplanted later because
- A. Their seedlings are delicate
 - B. Their germination capacity is low
 - C. They require shade at initial stage
 - D. Their seeds are small
19. The following are reasons for hanging green plants in a poultry house **except**
- A. Keeping birds busy
 - B. Controlling pest and diseases
 - C. Controlling cannibalism
 - D. Providing vitamins to birds
20. Fixed costs are not used to determine the profitability of a farm enterprise because they
- A. do not vary with the amount of production
 - B. are not easily determined
 - C. are shared by several enterprises
 - D. are met once in production
21. Too much nitrogen uptake by a plant may cause
- A. Browning of leaves and premature drop off
 - B. Chlorosis and necrosis
 - C. Delayed maturity
 - D. Production of pigment other than chlorophyll
22. Which one of the following is untrue about indigenous tropical cattle breed?

- A. Have ability to survive on poor pasture
 - B. Possess thin skin layer
 - C. Have more sweat gland
 - D. Are generally humpless
23. Dieldrin is applied to holes for planting sugarcane in order to
- A. Control ratoon stunting disease
 - B. Prevent termites from eating the cutting
 - C. Increase rooting
 - D. Quicken sprouting
24. Which one of the following is **not** true of a soil profile?
- A. Mature soils have well developed profiles
 - B. Leaching is highest in top soils
 - C. Sub-soil has finer particles than top soil
 - D. Eluviation occurs in top soil
25. Which one of the following directly affects the demand for agricultural product?
- A. Quantity produced
 - B. Price of the product
 - C. Method of production
 - D. Cost of production
26. Which one of the following is not an adaptation for photosynthesis in leaf?
- A. Thick leaf cuticle
 - B. Broad lamina
 - C. Numerous chloroplasts in the palisade cells
 - D. Presence of air spaces between leaf cells
27. What would be the recommended planting depth of a bean seed measuring 6mm in diameter?
- A. 18mm
 - B. 24mm
 - C. 12mm
 - D. 3mm
28. Which one of the following diseases in a calf is characterized by swollen lymph nodes, bloody diarrhea and high temperature
- A. Calf dysentery
 - B. Pneumonia
 - C. Trypanosomiasis
 - D. East coast fever
29. The function of a compression stroke in a diesel engine is to
- A. Ignite the compressed air
 - B. Allow expansion of air in cylinder
 - C. Raises the temperature of air for easy ignition
 - D. Make fuel air mixture vaporize
30. Which one of the following influences the effectiveness of a non-selective herbicide?
- A. Type of weed being controlled

- B. Degree of wetting of leaves
- C. Type of crop being grown
- D. Time of the day the herbicide is applied

SECTION B

Write answers in the spaces provided

31. (a) Outline **five** ways by which the concentration of a dip wash may change. (05marks)
 (b) The level of a dip in the dip-tank at the time of dipping was 15000 litres and after dipping was 12400 litres. Given that the recommended acaricide: water ratio is 1:500 calculate the volume of
 (i) the Acaricide required for topping up. (02marks)
 (ii) water required for topping up
 (c) Describe one way of preventing the dip wash that drains from animals from flowing into the pasture, (02marks)
32. (a) Outline **four** ways in which soil pH may influence soil production. (04marks)
 (b)(i) Giving an example in each case, distinguish between single and compound fertilizers (03marks)
 (ii) Suggest **three** factors that may make a good fertilizer ineffective. (03marks)
33. (a) Give **four** reasons why it is important to know the life cycle of a parasite. (04marks)
 (b) Give **six** qualities of a good pesticide (06marks)
34. (a) State **four** factors that affect the profit margin in agricultural production. (04marks)
 (b) Calculate the gross margin per hectare of a maize crop grown on 5 hectares of land, if the total yield is 10,000kg: given that the maize was sold at sh 500= per kg, seeds were bought at 20,000, fertilizers at sh 400,000= and herbicides at sh 100,000=. (02marks)
 (c) Give four conditions under which a farmer would change a farm plan. (04marks)
35. Tomato plants vary in their leaf shapes described as cut-leaves and potato-leaved, and in their height, being tall or dwarf. When cut-leaved tall tomato plant were crossed with potato-leaved dwarf tomato plant, all the offspring in F1 generation were cut-leaved tall plant.
 (a) Giving a reason, state which alleles were dominant. (02marks)
 (b) Using suitable symbols work out the phenotypic ratio of the offspring resulting from a cross between two plants of the F1 generation. (06marks)
 (c) During the experiment, when plants from F1 were crossed with each other, the following results were obtained:
 918 cut-leaved tall plants
 297 potato-leaved tall plants
 301 cut-leaved dwarf plants
 102 potato-leaved dwarf plants
 State one conclusion from these results. Explain your answer. (02marks)

Suggested answers

1C 4C 7D 10D 13D 16C 19B 22D 25B 28D

2C 5B 8A 11C 14D 17B 20C 23B 26A 29A
3B 6B 9C 12D 15C 18A 21C 24C 27B 30B

Comments

3. Before slaughter, animals should be allowed access to water but held off feed for 12 to 24 hours to **assure complete bleeding and ease of evisceration** (the removal of internal organs).
6. Seed inoculation is carried out to enhance plant growth and health by introducing beneficial bacteria or fungi to the seeds before planting. This process is particularly important for legumes which form a symbiotic relationship with nitrogen-fixing bacteria like Rhizobium.
9. Low temperature inactivates pathogen
11. Land reform is **a form of agrarian reform involving the changing of laws, regulations, or customs regarding land ownership**. Land reform may consist of government-initiated or government-backed property redistribution, generally of agricultural land.
27. Large seeds, such as beans, pumpkins, or sunflowers, prefer a depth of **one to two inches**. Small seeds, on the other hand, such as lettuce or poppy seeds, thrive best when sprinkled on the soil's surface or under a thin layer of dirt, not more than 1/8 of an inch deep. (1" = 2.54cm = 25.4mm)
28. East coast fever/corridor disease (T. parva) is a disease that affects cattle and is characterized by fever, **generalized lymphadenopathy**, anorexia, loss of conditions, and in some animals, nasal discharge or diarrhea.
29. The compression **creates heat, which ignites atomized diesel fuel**.

SECTION B

Write answers in the spaces provided

31. (a) Outline **five** ways by which the concentration of a dip wash may change. (05marks)
- **Evaporation**: Over time, water in the dip wash can evaporate, leading to an increase in the concentration of the active ingredients.
 - **Dilution**: Adding water or other liquids to the dip wash can dilute the concentration of the active ingredients.
 - **Absorption**: The active ingredients can be absorbed by the animals being dipped, reducing the concentration in the remaining dip wash.
 - **Contamination**: Organic matter, such as dirt and feces, can contaminate the dip wash, affecting the concentration of the active ingredients.
 - **Chemical degradation** due exposure to light, heat and other environmental factors.

- (b) The level of a dip in the dip-tank at the time of dipping was 15000 litres and after dipping was 12400 litres. Given that the recommended acaricide: water ratio is 1:500 calculate the volume of (i) the Acaricide required for topping up. (02marks)

Total volume for topping up = 15000 – 12400 = 2,600

Total ratio = 500 + 1 = 501

Volume of Acaricide = $\frac{1}{501} \times 2600 = 5.2l$

- (ii) water required for topping up

2,600 – 5.2 = 25,994.8 L

- (c) Describe one way of preventing the dip wash that drains from animals from flowing into the pasture, (02marks)

The residue liquid is collected in a septic tank

32. (a) Outline **four** ways in which soil pH may influence soil production. (04marks)

- It affects the presence of certain plant pathogens like bacteria and fungi are not common at low PH but fungi are common
- At very low PH the concentration of certain nutrients such as iron and Aluminium in the soil becomes toxic to plants.
- Soil PH has a strong influence on the availability of various plant nutrients.
- Very low or very high PH inhibits the activity of the soil micro-organisms more especially the nitrifying bacteria.

- (b)(i) Giving an example in each case, distinguish between single and compound fertilizers (03marks)
Straight fertilizers e.g. potassium nitrate come with a single ingredient and are useful if one nutrient is missing from the soil. On the other hand, **compound fertilizers contain more than two constituents**. One common type of compound fertilizer is NPK (Nitrogen, Phosphorus, and Potassium) fertilizer, DAP.

- (ii) Suggest **three** factors that may make a good fertilizer ineffective. (03marks)

- Unfavorable pH
- Poor Method of placement
- Weed competition
- Lack of water in the soil
- Type of soil
- Under application of fertilizers

33. (a) Give **four** reasons why it is important to know the life cycle of a parasite. (04marks)

- To find the best stage intervene in order to eradicate them
- To know how the parasite cause damage
- To know how parasite spread
- To know how parasites feed
- How to identify the damaging stage of parasites

- (b) Give **six** qualities of a good pesticide (06marks)

- toxic to the target organism

- specific to the target organism
- biodegradable not to accumulate in the environment
- harmless to the plants and animals
- cheap and readily available
- easy to store and transport
- readily soluble in water
- not accumulate in ecosystem

34. (a) State **four** factors that affect the profit margin in agricultural production. (04marks)

- Farm input costs;
- Crop yield metrics;
- Nature of adoption rate;
- Size of the farm
- Type of enterprise

(b) Calculate the gross margin per hectare of a maize crop grown on 5 hectares of land, if the total yield is 10,000kg: given that the maize was sold at sh 500= per kg, seeds were bought at 20,000, fertilizers at sh 400,000= and herbicide s at sh 100,000=. (02marks)

$$\text{Sales} = 10,000 \times 500 = 5,000,000=$$

$$\text{Costs} = 20,000 + 400,000 + 100,000 = 520,000=$$

$$\text{Gross profit} = 5,000,000 - 520,000 = 4,480,000=$$

(c) Give four conditions under which a farmer would change a farm plan. (04marks)

- Fluctuation of prices of crops and animals and changes in costs of inputs
- Changes in weather patterns
- Adoption of new technologies
- Policy changes such as new environmental or labor protection laws
- Financial difficulties or gains
- Personal reasons such as personal health
- Market demands

35. Tomato plants vary in their leaf shapes described as cut-leaves and potato-leaved, and in their height, being tall or dwarf. When cut-leaved tall tomato plant was crossed with potato-leaved dwarf tomato plant, all the offspring in F1 generation were cut-leaved tall plant.

(a) Giving a reason, state which alleles were dominant. (02marks)

Cut-leaves and tall because they mask potato-leaves and dwarf characters respectively

(b) Using suitable symbols work out the phenotypic ratio of the offspring resulting from a cross between two plants of the F1 generation. (06marks)

Using pannel square

Let the following letters represent the alleles

T- tall, t- dwarf, C – cut-leaved, c- potato-leave

	TC	Tc	tC	tc
TC	TTCC	TTCc	TtCC	TtCc
Tc	TTCc	TTcc	TtCc	Ttcc
tC	TtCC	TtCc	ttCC	ttCc
tc	TtCc	Ttcc	ttCc	ttcc

Phenotypic ratio is

Cut-leave and Tall 9

Cut leave and tall 3

Potato leaves and Tall 3

Potato laves and dwarf 1

The ratio 9: 3: 3: 1.

(c) During the experiment, when plants from F1 were crossed with each other, the following results were obtained:

918 cut-leaved tall plants

297 potato-leaved tall plants

301 cut-leaved dwarf plants

102 potato-leaved dwarf plants

State one conclusion from these results. Explain your answer. (02marks)

there was independent segregation because the values fit in the ration 9:3:3:1

Please obtain free downloadable notes of general paper, biology, economics, geography etc. from digitalteachers.co.ug website

Thanks

Dr. Bbosa Science