



JOINT UNIVERSITIES PRELIMINARY EXAMINATIONS BOARD

JUNE 2019 EXAMINATIONS

JUPEB/002E

AGRICULTURAL SCIENCE: SCI – J151

TIME ALLOWED: 3 hours

SECTION A: MULTIPLE CHOICE QUESTIONS

Answer all questions in this section.

Use the OMR answer sheet provided to answer the questions, follow the instructions on the OMR sheet.

SECTION B: ESSAY QUESTIONS

Answer FOUR questions in all; ONE from each Course.

Turn Over

SECTION A: MULTIPLE CHOICE QUESTIONS.

Answer ALL Questions.

1. The following statements about organic matter in the soil are not true except that _____.
 - A. it forms 45% of the total volume of the soil.
 - B. it forms 5% of the total volume of the soil.
 - C. it forms 25% of the total volume of the soil.
 - D. it forms 55% of the total volume of the soil.
2. The type of water left in the soil after excess water has been drained off, after heavy rainfall and it is available to crop plant is called _____.
 - A. hygroscopic water.
 - B. field capacity.
 - C. capillary water.
 - D. gravitational water.
3. One of the following best defines pH of a soil in agriculture.
 - A. $-\log_{10} \text{AH}^+$.
 - B. $\log_{10} \text{AH}^+$.
 - C. $-\log_{10} \text{OH}^-$.
 - D. $\log_{10} \text{OH}^-$.
4. Pollen grains are fine yellowish particles which are produced in the anther lobes within a region called _____.
 - A. pollen sac.
 - B. pollen lope.
 - C. pollen membrane.
 - D. pollen coat.
5. _____ explains the female's reproductive organs of a flower in flowering plants.
 - A. Polycarpous.
 - B. Monocarpous.
 - C. Androecium.
 - D. Gynoecium.
6. _____ is a major reason why insects go to a flower.
 - A. To pollinate the flower.
 - B. To feed on the flower.
 - C. To suck the nectar of the flower.
 - D. To fertilize the flower.

7. _____ is a protective covering of the soil surface intended to minimize evaporation losses.
- A. Drainage.
 - B. Mulch.
 - C. Contour.
 - D. Soil profile.
8. The sand, silt, and clayey particles of the soil are cemented together in the soil to form natural units of compound aggregates separated by pores. This process is called _____
- A. soil consistency.
 - B. soil texture.
 - C. soil structure.
 - D. soil colloids.
9. _____ soils have a higher bulk density than clayey soils and less pore space.
- A. Sandy surface.
 - B. Clayey surface.
 - C. Loamy surface.
 - D. Sit surface.
10. _____ may be defined as the availability of plant nutrients in a soil to the plant growing on it.
- A. Soil fertility.
 - B. Soil planktons.
 - C. Soil water loss.
 - D. Soil miscarrier.
- 11 The artificial supply of water to farm lands for crop production is called _____
- A. rainfall.
 - B. drainage.
 - C. irrigation.
 - D. flooding.
12. The process of spot tillage in agriculture is called _____
- A. maximum tillage.
 - B. minimum tillage.
 - C. operational tillage.
 - D. erodibility tillage.
13. The organism which depends on another organism for food and cause harm to that organism is referred to as a _____
- A. disease.

- B. pest.
- C. parasite.
- D. predator.

14 The simplest unit of the Nucleic Acid is _____

- A. Nucleoside.
- B. Nucleolis.
- C. Nucleonus.
- D. Nucleotides.

15. The material which after ingestion by the animal is capable of being digested, absorbed and utilized for metabolic needs is called _____

- A. energy.
- B. water.
- C. feed.
- D. protein.

16. The type of gene action where the interaction among alleles is at different loci of the same or different chromosome is termed _____

- A. dominance.
- B. epistasis.
- C. heterozygosity.
- D. variance.

17. The mating of two heterozygotes will produce individuals with phenotypic ratio of _____

- A. 2:1
- B. 3:1
- C. 1:2:1
- D. 2:3

18. The phenotypic colour expression of animal crosses between Red coat colour (TT) and White coat colour (tt) is that _____

- A. all will be White.
- B. all will be Red.
- C. all will be Red and White.
- D. neither Red nor White will occur.

19 The process of cutting fresh or succulent grass and legume from the field and taking it to the animals in their pens is called _____

- A. silage.
- B. soilage.

- C. hay.
D. folder
20. Which of the following is a protein concentrate?
A. Fish meal.
B. Wheat meal.
C. Maize meal.
D. Cassava flour.
21. The ration usually fed to non-productive animal like old layers, dry or non-lactating animals is called _____.
A. production ration.
B. balance ration.
C. supplementary ration.
D. maintenance ration.
22. The seminal fluid rich in electrolytes in the testicles comes from the _____.
A. Cowper's glands.
B. prostate gland.
C. seminal vesicles.
D. vas-deferens.
23. The average gestation period in sow is _____.
A. 283 days.
B. 114 days.
C. 148 days/151 days.
D. 30 days.
24. Alternative form of a gene that may occur at a given gene loci and that are responsible for the contrasting forms exhibited by animals is called _____.
A. alleles.
B. epistasis.
C. chromosome.
D. recessive.
25. Taungya farming involves the combination of _____.
A. forestry and hunting.
B. forestry and animal husbandry.
C. crop husbandry and animal husbandry.
D. crop husbandry and forestry.
26. The first operation in establishing a fish pond is _____

- A. Clearing and stumping of site.
 - B. Dam construction.
 - C. Spill way construction.
 - D. Purchase of fingerlings.
27. The best reason for having access road in a forest plantation is _____
- A. control of erosion.
 - B. fertilizer application.
 - C. fire fighting.
 - D. easy removal of weeds.
28. The major reason for using compost manure to fertilize a fish pond is to _____
- A. decrease phytoplankton and fish yield.
 - B. increase fish yield and decrease phytoplankton.
 - C. decrease fish yield and increase phytoplankton.
 - D. increase phytoplankton and fish yield.
29. In fish farming, what does cropping refer to?
- A. Stocking of fish.
 - B. Harvesting fish.
 - C. Feeding fish.
 - D. Fish storage.
30. Fish ponds in northern Nigeria should be deeper than the ones in southern part in order to _____
- A. ensure rapid growth of fish.
 - B. prevent loss of fish through extreme temperatures.
 - C. provide sufficient nutrients for the survival of fish.
 - D. prevent exposure of fish to direct effect of the sun.
31. Which body part do fishes use for maneuvering in water?
- A. Fins.
 - B. Lateral lines.
 - C. Barbells.
 - D. Spine.
32. The scientific name for Teak is _____
- A. *Terminalia ivorensis*.
 - B. *Tectona grandis*.
 - C. *Chlorophora excels*.

D. *Khaya ivorensis*.

33. Methods of harvesting wildlife include the following except _____
- A. trapping
 - B. baiting
 - C. grooming
 - D. shooting
34. A method of harvesting timber which involves removing some mature trees and leaving others to allow for natural regeneration is known as _____
- A. single tree selection system.
 - B. clear cutting.
 - C. seed tree system.
 - D. regeneration.
35. A process applied to a freshly harvested timber before further processing/ treatment is called _____
- A. charring.
 - B. dipping.
 - C. seasoning.
 - D. spraying.
36. Turbidity is a measure of _____
- A. Sun rays in water.
 - B. suspended materials.
 - C. Oxygen content.
 - D. pH in a body of water.
37. Agricultural economics can be defined as the application of economic principles to the operation of the _____
- A. farming industry.
 - B. chemical industry.
 - C. engineering industry.
 - D. mechanical industry.
38. The price that is determined when demand and supply curves meet at a point is called _____
- A. disequilibrium price.
 - B. equilibrium price.
 - C. diminishing returns price.
 - D. increasing returns price.

39. The list of unsatisfied wants arranged in order of importance is called _____
- A. opportunity cost.
 - B. scale of preference.
 - C. law of diminishing returns.
 - D. inelastic demand.
40. The following are the importance of agricultural extension except _____
- A. acquisition of skills.
 - B. increase in agricultural production.
 - C. raising the standard of living of the farmers.
 - D. decreasing agricultural output.
41. The mass media method of disseminating information to farmers including the following except _____
- A. radio.
 - B. television.
 - C. field trips.
 - D. newspapers.
42. One of the disadvantages of using print media as means of disseminating information to farmers is that _____
- A. it can reach out to large farmers.
 - B. the information can last long.
 - C. it may not require the presence of extension agents.
 - D. they are only available to farmers who are wealthy enough to own them.
- 43 Total cost consists of _____ and _____.
- A. budget; fixed
 - B. budget; revenue
 - C. fixed; variable
 - D. production; variable
- 44 Profit is maximum at the output level (x) where total revenue _____
- A. exceeds total cost by the greatest amount.
 - B. exceeds total product equilibrium by the greatest amount.
 - C. is lesser than total cost by the greatest amount.
 - D. is lesser than total product equilibrium by the greatest amount.
45. If a farmer can produce either 3 tons of groundnut or 8 tons of rice from 1 hectare of land, and he chose to produce 8 tons of rice on that hectare of land; what is the opportunity cost?

- A. Three tons of groundnut.
 - B. Three tons of groundnut and 8 tons of rice.
 - C. Eight tons of rice.
 - D. the hectare of land.
46. _____ is the positive difference between revenue and total cost.
- A. Budget
 - B. Marginal cost
 - C. Profit
 - D. Utility
47. Increase in price of an inelastic demand leads to _____
- A. increased demand by consumer.
 - B. increased revenue for producer.
 - C. reduced demand by consumer.
 - D. reduced revenue for the producer.
48. The rights of people to own, use and control land and its resources is land _____
- A. apportionment.
 - B. tenets.
 - C. tenure.
 - D. use act.
49. What is the systematic recording of financial transactions?
- A. Account recording.
 - B. Book keeping.
 - C. Ledgering.
 - D. Trial balancing.
50. Elasticity of demand is unitary when it is _____
- A. ≤ 1 .
 - B. ≥ 1 .
 - C. $= 1$.
 - D. $\neq 1$.

SECTION B: ESSAY QUESTIONS

Answer FOUR questions in all; ONE Question from each Course

AGR 001: Agronomy and Crop Production

Question 1

- (a). Define the term soil structure and state its importance in agricultural production. [4 marks]
- (b) i. What is rock weathering? [½ mark]
ii. Enumerate three processes in rock weathering and discuss briefly any four agents of these processes. [5½ marks]

Question 2

- (a) Explain four factors of soil formation. [4 marks]
- (b) List four ways of maintaining soil organic matter. [2 marks]
- (c) State four functions and two deficiency symptoms of Nitrogen in plants. [4 marks]

AGR 002: Animal Science and Production

Question 3

- (a) State and explain five (5) qualities of feed stuff that should be considered when compounding livestock feed. [7½ marks]
- (b) Using a Pearson Square method, prepare a ration of 2,500kcal/kg for rabbit (grower) using molasses and soya bean meal, given that molasses give 1,900kcal/kg and soya bean 3,500kcal/kg. [2½ marks]

Question 4

- (a) What is feed digestibility coefficient? [2 marks]
- (b) A cow ate 1kg of fresh Elephant grass containing 0.3kg of dry matter (DM). It excreted 0.5kg of faeces containing 0.1kg of dry matter (DM). Calculate the digestibility coefficient of the crude protein (CP) given that:

Component	Grass (%)	Faeces (%)	
Crude Fibre (CF)	30	35	
Crude Protein (CP)	10	8	
Ether Extract (EE)	7	6	
Nitrogen Free Extract (NFE)	46	42	[8 marks]

AGR 003: Wildlife, Aquaculture and Agro-forestry

Question 5

- (a) (i) Highlight four (4) methods of maintaining fish pond. [2 marks]
(ii) Explain three (3) factors necessary for siting fish pond. [3 marks]
(iii) State two (2) examples each of salt and fresh water fishes. [2 marks]
- (b) Write short notes on the following:
(i) Distribution channel
(ii) Monk
(iii) Screens [3 marks]

Question 6

- (a) (i) Define the term agroforestry? [1 mark]
(ii) In a tabular form, mention four (4) scientific and common names of agroforestry tree species. [4 marks]
- (b) Differentiate between the following:
(i) Agrosilvipastoralism and agrosilviaaquaculture.
(ii) Agrosilviheliculture and agrosilvimycology. [4 marks]
- (c) State two advantages of agroforestry in agriculture. [1 mark]

AGR 004: Agricultural Economics/Extension

Question 7

- (a) What is farm management? [1 mark]
(b) Explain clearly the human and institutional sources of risks in farm business. [4 marks]
(c) State five ways by which risks can be reduced in farming business. [5 marks]

Question 8

- (a) What do you understand by the term marketing in agriculture? [1 mark]
(b) State five differences between perfect and imperfect competition in marketing. [4 marks]
(c) List four problems associated with marketing of farm produce in Nigeria. [5 marks]