



JOINT UNIVERSITIES PRELIMINARY EXAMINATIONS BOARD
SEPTEMBER 2020 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 MCQ questions. Follow the instructions on the OMR sheet.

SECTION B: ESSAY QUESTIONS

Answer FOUR questions; ONE question from each course.

Turn Over

SECTION A: MULTIPLE CHOICE QUESTIONS.

Answer ALL questions.

- The loss of water in the form of vapour from plants is known as
 - respiration.
 - oxidation.
 - transpiration.
 - condensation.
- Volatilization loss of ammonia in soil increases with the increase in ...
 - calcium carbonate content of the soil.
 - moisture content of the soil.
 - clay content of the soil.
 - cation exchange capacity of the soil.
- Which of the following is a characteristic of clays?
 - <0.002 mm in diameter and consisting of primary minerals.
 - <0.002 mm in diameter and made up of primary and secondary minerals.
 - >0.002 mm in diameter and consisting of secondary minerals.
 - <0.002 mm in diameter and consisting of secondary minerals.
- Which of the following pairs is not correctly matched?

Crop	Moisture sensitive stage
A. Rice	Flowering and panicle initiation.
B. Maize	Germination.
C. Pepper	Flowering.
D. Cowpea	Boll development.
- Which of the following is most suitable for cultivation of *Arachis hypogea*?
 - Clayey soil.
 - Silty soil.
 - Loam and clayey soil.
 - Sandy and sandy-loam soil.

6. The subsoil texture of a rapidly permeable soil is regarded as
- A. coarse.
 - B. fine.
 - C. clayey.
 - D. medium.
7. The rate of biochemical activities of soil organisms is mostly affected by
- A. wind and relative humidity.
 - B. temperature and water.
 - C. frost and pressure.
 - D. insolation and evaporation.
8. Transfer of nutrient ions across the soil root interfaces into the plant cell is
- A. diffusion of nutrients.
 - B. mass flow of nutrients.
 - C. absorption of nutrients.
 - D. adsorption of nutrients
9. Weathering process through which hematite is converted to limonite is referred to as
- A. oxidation.
 - B. solution.
 - C. hydration.
 - D. hydrolysis.
10. Deficiency of Iron in crops would result into
- A. leaf edge chlorosis.
 - B. interveinal chlorosis.
 - C. leaf necrosis.
 - D. leaf distortion.
11. Soil air is important in
- A. determination of soil colour.
 - B. determination of soil structure.
 - C. determination of soil texture.
 - D. determination of soil depth.

12. Weed seed germination is dependent upon the following except
- A. temperature level.
 - B. depth of seed burial.
 - C. carbon dioxide level.
 - D. soil nitrate level.
13. The chemical fractions of humus include all except
- A. fulvic acid
 - B. humic acid
 - C. humin
 - D. lignin
14. 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
15. Which of the following is a protein concentrate?
- A. Fish meal.
 - B. Wheat meal.
 - C. Maize meal.
 - D. Cassava flour.
16. 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.
17. 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.

18. The average gestation period in sow is
- A. 283 days.
 - B. 114 days.
 - C. 148 days/151 days.
 - D. 30 days.
19. 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.
20. Deleterious recessive alleles have a greater likelihood of being paired and expressed under
- A. inbreeding
 - B. cross-breeding
 - C. out-breeding
 - D. line breeding
21. Castration is done in male farm animals primarily to control breeding and
- A. increase their strength.
 - B. maintain their health.
 - C. make them less aggressive.
 - D. reduce food consumption.
22. What produces the spermatozoa and the male sex hormone?
- A. epididymis.
 - B. seminal vesicles.
 - C. testis.
 - D. vas deferens.

- 23 The primary organ of reproduction in the female is the
- A. fallopian tube.
 - B. infundibulum.
 - C. ovary.
 - D. vulva.
- 24 In the Mare, the embryo develops in the body of the uterus, while in the Ewe, it develops in the
- A. cervix.
 - B. horn.
 - C. ligament.
 - D. oviduct.
- 25 The average length of Oestrus cycle in Sow is
- A. 10-12 days.
 - B. 15-17 days.
 - C. 19-21 days.
 - D. 23-25 days.
- 26 Digestion of cellulose in Cow is carried out by bacteria in the
- A. abomasum
 - B. omasum
 - C. reticulum
 - D. rumen
27. Which of the following best describes the management strategies applied to a forest plantation from seed germination to maturity of the tree?
- A. Forestry
 - B. Forest management
 - C. Silviculture
 - D. Taungya system
- 28 The following species of trees are commonly found in rainforest ecosystems except
- A. *Butyrospermum perkii*.
 - B. *Khaya grandifolia*.
 - C. *Millettia excelsa*.
 - D. *Triplochiton scleroxylon*.

29. Which of the forest zones of Africa are found behind mangrove swamps?
- A. Mangrove swamp forest.
 - B. Fresh water swamp forest.
 - C. Salt water swamp forest.
 - D. Rainforest ecosystem.
- 30 The system which involves the cultivation of arable crops, raising of animals and planting of forest tree species on the same piece of land is called
- A. taungya system.
 - B. agroforestry.
 - C. alley farming.
 - D. mixed farming.
- 31 The protective uses of forests include the following except
- A. soil compaction.
 - B. soil conservation.
 - C. water conservation.
 - D. nutrient recycling.
- 32 Wildlife in agriculture can best be described as
- A. Czd's\call plants and animals in the wild state.
 - B. all plants in the wild state.
 - C. all animals in the wild state.
 - D. some animals like lions and snakes in the wild state.
- 33 Which one is a forest product?
- A. Banana.
 - B. Cassava.
 - C. Tomatoes.
 - D. Dyes.
- 34 The use of carbon dioxide in the atmosphere by forest trees lead to
- A. heavy precipitation.
 - B. reducing the damaging effects of the ozone layer.

- C. increased global warming.
 - D. depletion of carbon dioxide in the atmosphere.
- 35 Which of the following is the system that places emphasis on perennial, multiple purpose crops?
- A. Forestry
 - B. Agriculture
 - C. Agro-forestry
 - D. Wildlife
- 36 What are the laws made by government to preventing people from entering forest reserves to kill animals as well as fell trees?
- A. Selective exploitation
 - B. Legislature
 - C. Forest regulation
 - D. Agricultural reforms
- 37 Taungya system means
- A. growing of both tree or forest trees and food crops on the same piece of land at a time.
 - B. growing tree seedlings to make forest.
 - C. indiscriminate cutting down of trees.
 - D. cutting down of selected trees that are found to be matured.
- 38 Timber harvesting is also known as
- A. landing.
 - B. logging.
 - C. lumbering.
 - D. bucking.
- 39 The appropriate irrigation method for upland rice is
- A. sprinkler.
 - B. drip.
 - C. flooding.
 - D. underground.

- 40 Expression of cost in terms of forgone alternatives is referred to as
- A. choice
 - B. scale of preference
 - C. real cost
 - D. opportunity cost
- 41 The degree of responsiveness of supply to the little changes in the price of a commodity is known as
- A. supply curve
 - B. demand Curve
 - C. elasticity of supply
 - D. elasticity of demand
- 42 In farm machine, like tractor, the burning of fuel takes place in
- A. compression chamber.
 - B. combustion chamber.
 - C. connecting chamber.
 - D. fuel chamber.
43. Which of the following methods of agricultural extensions aims at reaching a large number of farmers at the same time?
- A. Mass method.
 - B. Group method.
 - C. Interpersonal method.
 - D. Contact method.
- 44 Risk on the farm can be managed through
- A. Diversification.
 - B. taxation.
 - C. repayment of loans.
 - D. imposing levy.
45. Demand can best be defined as
- A. consumer's willingness and ability to consume a given good at a given price at a particular time.
 - B. consumers' willingness to consume a given good at a given price at a particular time.

- C. consumer's desire to consume a given good at a given price at a particular time.
- D. consumer's ability to consume a given good at a given price at a particular time.

46 The law of demand states that there is

- A. an inverse relationship between price and quantity supplied of a good to the consumer.
- B. a positive relationship between price and quantity demanded of a good by a consumer.
- C. an inverse relationship between price and quantity demanded of a good by a consumer.
- D. a direct relationship between price and quantity demanded of a good by a consumer.

47 If a one percent change in price causes greater than one percent change in quantity demanded of goods, the demand is said to be

- A. inelastic demand.
- B. elastic demand.
- C. perfectly inelastic demand.
- D. perfectly elastic demand.

48 If the price of a good changes by 10% results in a 20% change in demand, what is the price elasticity of demand?

- A. $E_d = 0.50$.
- B. $E_d = 0.5$.
- C. $E_d = 2.5$.
- D. $E_d = 2.0$.

49. One of the under listed factors does not generally influence supply actions of producers.

- A. The location of the farm and the nature of road.
- B. The price of the product being supplied and the price of other or alternative products.
- C. The number of firms producing the product and unpredictable events such as the weather.
- D. The price of inputs and technological advances.

50. The Law of Variable Proportions does not involve one of these phases.

- A. Increasing production.
- B. Diminishing production.
- C. Constant production.
- D. Negative production.

SECTION B: ESSAY QUESTIONS

Answer **FOUR** questions in all; **ONE** from each Course

AGR 001: Agronomy and Crop Production

- 1a. (i) Define the term pest. [1 mark]
(ii) State two types of mouth parts possessed by insect pests and one example each. [3 marks]
(iii) Highlight two effects of insect pests on crop plants and two methods of control. [3 marks]
- (b) Draw and label a diagram of maize weevil and state its scientific name. [3 marks]
- 2a. (i) Define the term weed. [½ mark]
(ii) Explain two (2) methods of weed dispersal in agriculture. [2 marks]
(iii) In a tabular form, identify five (5) common weeds in the farm stating their scientific and common names. [5 marks]
- (b) Explain elaborately, the chemical method of weeds control. [2½ marks]

AGR 002: Animal Science and Production

- 3a. Differentiate between the following:
- (i) Testosterone and oestrogen. [2 marks]
(ii) Progesterone and oxytocin. [2 marks]
(iii) Relaxin and placental hormones. [2 marks]
- (b) Draw and label the urinogenital system of a male rabbit. [4 marks]
- 4 (a) In an incubator, 1,500 eggs were arranged on the trays for incubation. During candling 185 eggs were found to be unfertilized. At hatching, 644 were females and the remainder were males. Calculate the percentage of:
- i. Unfertilized eggs
ii. Fertilized eggs
iii. Male chicks
iv. Female chicks. [4 marks]
- (b) Explain briefly the roles of the following in poultry production:
- (i) temperature. [3 marks]
(ii) relative humidity. [3 marks]

AGR 003: Wildlife, Aquaculture and Agro-forestry

- 5 (a) Define the term desertification. [2 marks]

- (b) State **four** factors that can lead to desertification. [2 marks]
- (c) Enumerate four damaging effects of desertification. [4 marks]
- (d) List four systems of agroforestry. [2 marks]

- 6 (a) Explain four methods of harvesting fish. [4 marks]
- (b) Define the term Fishery regulation. [2 marks]
- (c) Explain four fishery regulations in Nigeria. [4 marks]

AGR 004: Agricultural Economics/Extension

- 7a (i) Explain four (4) channels of marketing farm produce. [4 marks]
- (ii) State two (2) functions agricultural marketing. [2 marks]
- b (i). State two (2) advantages and two (2) disadvantages of cooperative society. [2 marks]
- (ii) Mention two (2) problems of agricultural marketing. [2 marks]
- 8a.(i) Define the term agricultural extension. [1 mark]
- (ii) Mention two (2) qualities of a good extension worker. [1 mark]
- (iii) State four (4) functions of agricultural extension. [2 marks]
- b (i) Explain the roles of mass media on agricultural development in Nigeria. [3 marks]
- (ii) What are the three (3) factors affecting the rate of adoption of innovation in agriculture? [3 marks]