

AGRIC SCIENCE (TYPE C)

PAPER II

Answer **five** questions only, **one** from each section.

SECTION A

1.
 - (a) Explain **two** ways through which the following factors determine the location of animal housing unit in a farm:
 - i. Hygiene (2 marks)
 - ii. Drainage (2 marks)
 - (b) Give **four** farm tools that are used mainly for post planting operation in citrus plantation. (4 marks)
 - (c) Mention **two** objectives of the following non-governmental organisations in Nigeria:
 - i. International institute of-Tropical Agriculture (IITA) (2 marks)
 - ii. International livestock centre for Agriculture (ILCA) (2 marks)
 - (d) List **four** factors that causes shortage of fresh food supply in the urban areas of Nigeria. (4marks)
2.
 - (a) Mention **one** major function each of the following parts of a disc plough:
 - i. Beam (1 mark)
 - ii. Scraper (1 mark)
 - iii. Furrow wheel (1 mark)
 - iv. Coupling point (1 mark)
 - (b) Enumerate **four** sources of farm power. (4 marks)
 - (c) List **four** advantages of land use decree in Nigeria. (4 marks)
 - (d) State **four** reasons for establishing Agricultural Research Institute. (4 marks)



SECTION B

3. (a) State **four** advantages of organic matter to soil. (4 marks)
 (b) mention **three** reasons for the preference of loamy soil to other soil types in the cultivation of stem tuber crops. (3 marks)
 (c) Copy and complete the table below.

S/N	Original rock	Metamorphic rocks
i	sandstone	
ii		slate
iii	shale	

- (d) Give **two** major effects noise pollution in the farm. (3 marks)
 (e) List **two** demerits of the following farming practices on soil: (2 marks)
 i. Total tillage (2 marks)
 ii. Fertilizer application (2 marks)
4. (a) Mention **four** methods through which nutrients in the soil can be replenished. (4 marks)
 (b) Enumerate **four** properties of sandy soil. (4 marks)
 (c) State **four** benefits of mulching. (4 marks)
 (d) List **four** factors of soil formation. (4 marks)

SECTION C

- 5 (a) (i) Define silviculture. (2marks)
 (ii) Differentiate between alley cropping and taungya farming. (2marks)
- (b) Briefly explain onion twister disease under the following headings:
 (i) Mode of transmission (1 mark)
 (ii) **Two** symptoms (2 marks)
 (iii) **One** control measure (1 mark)
- (c) Itemize **two** morphological features that are similar to the following pairs of pasture crops:
 (i) Guinea grass and elephant grass (2 marks)
 (ii) Tropical kudzu and sunhemp (2 marks)
- (d) List **four** reasons farmers prefer mixed cropping to the mono-cropping. (4 marks)
6. (a) State **three** effects of weevil on maize. (3 marks)
 (b) Give **five** economic importance of weeds in agriculture. (5 marks)
 (c) List **four** control measures of insect pests on stored grains. (4 marks)
 (d) Mention **four** factors that affect the productivity of pasture. (4 marks)



SECTION D

7. (a) Outline **three** processes that must take place within the lung of a farm animal during exhalation. (3 marks)
- (b) State **one** reason each for the following regulations in fish harvesting along the central areas of Nigeria:
- (i) Ban on electro fishing (1 mark)
 - (ii) Allocation of fishing area (1 mark)
 - (iii) Catch quota (1 mark)
 - (iii) Close season (1 mark)
- (c) Enumerate **three** demerits of nomadic farming in Nigeria. (3 marks)
- (d) (i) State **two** benefits of fostering offspring in animal management. (2 marks)
- (ii) Differentiate between steaming up and fattening up in animal management. (2 marks)
- (e) Give **two** important precautions that should be observed by apiarist when harvesting honey from a hive. (2 marks)
8. (a) Define the following terms as used in animal improvement:
- i. Artificial insemination (2 marks)
 - ii. Line-breeding (2 marks)
 - iii. Crossbreeding (2 marks)
- (b) State **two** functions of testosterone in a male farm animal. (2 marks)
- (c) List **four** methods of identification in cattle production. (4 marks)
- (d) State **two** reasons each for carrying out the following animal management practices:
- i. Castration (2 marks)
 - ii. Dehorning (2 marks)



SECTION E

- 9 (a) Mamman poultry farm secured ₦5,000,000 loan from International Development Agency at the rate of 5% per annum to be repaid in full at the end of 10 years.
- i. Classify the loan given to the farm based on the length of period and source of the loan. (2 marks)
 - ii. Calculate the total amount, the farm manager will repay to the agency at the end of 10 years. (2 marks)
 - iii. Enumerate **three** possible challenges the farm manager would have experienced before securing the loan. (3 marks)
- (b) Give **two** importance of keeping a profit and loss account. (2 marks)
- (c) State **four** problems of extension service that is caused by farmers in agricultural production. (4 marks)
- (d) State **three** ways of encouraging farmers to adopt innovations for bumper agricultural production. (3 marks)
10. (a) List **three** sources of farm finance. (3 marks)
- (b) State **six** roles of cooperative organisations in agricultural production. (6 marks)
- (c) Discuss **four** challenges faced by an agricultural extension worker in the discharge of his/her duties. (4 marks)
- (d) State **three** advantages of individual method of disseminating information. (3 marks)



(1a)

(i) Hygiene: hygiene determines the location of an animal housing unit because the site should be clean and free from refuse dumps, stagnant water, and other sources of contamination to reduce the spread of diseases. A hygienic environment promotes the health and productivity of farm animals.

(ii) Drainage: drainage determines the location of an animal housing unit because the site should be well-drained to prevent flooding and waterlogging. Good drainage keeps the animal house dry, reduces dampness, and minimizes disease outbreaks.

(1b)

(i) Cutlass

(ii) Hoe

(iii) Knapsack sprayer

(iv) Secateurs (Pruning shears)

(1ci)

International Institute of Tropical Agriculture (IITA):

(i) To develop improved crop varieties with high yield.

(ii) To promote sustainable agricultural production through agricultural research.

(1cii)

International Livestock Centre for Africa (ILCA):

(i) To improve livestock production through research.

(ii) To develop better livestock management practices and breeds.

(1d)

(i) Poor transportation system.

(ii) Inadequate storage facilities.

(iii) Rapid population growth in urban areas.

(iv) Seasonal nature of agricultural production.

(2a)

(i) Beam: supports and carries other parts of the disc plough.

(ii) Scraper: removes soil that sticks to the disc during ploughing.

(iii) Furrow Wheel: regulates the depth of ploughing and stabilizes the plough.

(iv) Coupling Point: connects the disc plough to the tractor.

(2b)

(i) Human labour

(ii) Animal power

- (iii) Mechanical power
- (iv) Electrical power

(2c)

- (i) Makes land readily available for agricultural purposes.
- (ii) Reduces land disputes.
- (iii) Enables government to acquire land for developmental projects.
- (iv) Encourages proper land use planning.

(2d)

- (i) To develop improved crop and livestock varieties.
 - (ii) To solve agricultural production problems through research.
 - (iii) To improve farming techniques and technologies.
 - (iv) To increase food production and agricultural productivity.
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(3a)

- (i) Organic matter improves soil fertility by supplying plant nutrients.
- (ii) It improves soil structure and texture.
- (iii) It increases the water-holding capacity of the soil.
- (iv) It encourages the activities of beneficial soil microorganisms.

(3b)

- (i) Loamy soil is fertile and rich in plant nutrients.
- (ii) It is well-drained but retains adequate moisture.
- (iii) It is loose, allowing easy development and expansion of stem tubers.

(3c)

[TABULATE PLEASE]

Under Original Rock

- (i) Sandstone
- (ii) Shale
- (iii) Shale

Under Metamorphic Rock

- (i) Sandstone -> Quartzite
- (ii) Shale -> Slate
- (iii) Shale -> Schist

(3d)

- (i) Noise pollution frightens and stresses farm animals, thereby reducing their productivity.
- (ii) It interferes with communication and concentration during farm operations.

(3e)

Total Tillage:

- (i) Encourages soil erosion.
- (ii) Destroys soil structure and beneficial organisms.

Fertilizer Application:

- (i) Excessive application may increase soil acidity.
 - (ii) Overuse may pollute soil and nearby water bodies.
-

(4a)

- (i) Application of organic manure.
- (ii) Application of inorganic fertilizers.
- (iii) Crop rotation.
- (iv) Bush fallowing.

(4b)

- (i) Sandy soil has large soil particles.
- (ii) It is well aerated.
- (iii) It has low water-holding capacity.
- (iv) It drains water rapidly.

(4c)

- (i) Conserves soil moisture.
- (ii) Suppresses weed growth.
- (iii) Reduces soil erosion.
- (iv) Improves soil fertility through decomposition of mulch materials.

(4d)

- (i) Climate.
 - (ii) Parent material.
 - (iii) Living organisms.
 - (iv) Topography (Relief).
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(5ai)

Silviculture: silviculture is the branch of forestry concerned with the establishment, cultivation, management, protection and harvesting of forest trees for economic and environmental purposes.

(5aii)

Alley cropping is a farming system in which food crops are grown between rows of trees or shrubs, while taungya farming is a farming system in which food crops are grown together with young forest trees during the early stage of forest establishment until the trees become mature.

(5bi)

Mode of transmission: onion twister disease is transmitted mainly through infected planting materials and insect vectors.

(5bii)

Two symptoms:

- (i) Twisting and curling of onion leaves.
- (ii) Yellowing and stunted growth of the plant.

(5biii)

One control measure: use disease-free planting materials and destroy infected plants.

(5ci)

- (i) Both possess long narrow leaves.
- (ii) Both have fibrous root systems.

(5cii)

- (i) Both are leguminous plants.
- (ii) Both have broad leaves.

(5d)

- (i) It reduces the risk of total crop failure.
 - (ii) It utilizes available land efficiently.
 - (iii) It helps to suppress weeds.
 - (iv) It improves soil fertility, especially where legumes are included.
-

(6a)

- (i) Causes holes in maize grains.
- (ii) Reduces the weight and quality of maize.
- (iii) Lowers the market value and viability of stored maize.

(6b)

- (i) Weeds help to reduce soil erosion by covering the soil surface.
- (ii) Some weeds are used as livestock feed.
- (iii) Some weeds improve soil fertility through nitrogen fixation.
- (iv) Some weeds are used for medicinal purposes.
- (v) Weeds can serve as mulch and organic manure.

(6c)

- (i) Proper drying of grains before storage.
- (ii) Fumigation of storage facilities.
- (iii) Use of airtight storage containers.
- (iv) Application of approved grain protectants or insecticides.

(6d)

- (i) Amount and distribution of rainfall.
 - (ii) Soil fertility.
 - (iii) Grazing intensity or stocking rate.
 - (iv) Weed, pest and disease infestation.
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(7a)

- (i) During exhalation, the diaphragm relaxes and moves upward.
- (ii) The intercostal muscles relax, causing the rib cage to move downward and inward.
- (iii) Air is forced out of the lungs as the volume of the chest cavity decreases and pressure inside the lungs increases.

(7b)

- (i) Ban on electro-fishing: to prevent the indiscriminate killing of fish and destruction of aquatic organisms.

- (ii) Allocation of fishing area: to prevent conflicts among fishermen and ensure proper management of fishing grounds.

- (iii) Catch quota: to prevent overfishing and conserve fish populations for sustainable production.

- (iv) Close season: to allow fish to breed and increase their population before harvesting resumes.

(7c)

- (i) It encourages overgrazing, leading to land degradation.
- (ii) It causes conflicts between herders and crop farmers.
- (iii) It contributes to the spread of livestock diseases due to uncontrolled movement of animals.

(7di)

- (i) It enables orphaned or rejected young animals to survive.
- (ii) It improves the survival rate and proper care of young animals.

(7dii)

Steaming up is the practice of giving extra nutritious feed to pregnant animals a few weeks before parturition to improve milk production and healthy offspring, while fattening up is the practice of feeding animals intensively to increase their body weight before marketing or slaughter.

(7e)

- (i) Wear protective clothing such as gloves, boots and a bee veil.

(ii) Harvest honey during cool periods or at night when bees are less active, using a smoker to calm them.

(8a)

(i) Artificial insemination: the process of collecting semen from a selected male animal and introducing it artificially into the reproductive tract of a female animal without natural mating.

(ii) Line-breeding: the mating of closely related animals that have a common outstanding ancestor in order to preserve desirable characteristics.

(iii) Crossbreeding: the mating of animals belonging to two different breeds to produce offspring with improved qualities.

(8b)

(i) Stimulates the development of male reproductive organs and secondary sexual characteristics.

(ii) Promotes sperm production and sexual behaviour.

(8c)

(i) Ear tagging.

(ii) Branding.

(iii) Tattooing.

(iv) Ear notching.

(8di)

Castration:

(i) To control breeding and prevent indiscriminate mating.

(ii) To improve meat quality and produce docile animals.

(8dii)

Dehorning:

(i) To prevent injuries among animals.

(ii) To make handling and transportation of animals easier.

(9ai)

(i) Based on period: long-term loan.

(ii) Based on source: institutional (International Development Agency) loan.

(9aii)

Principal (P) = ₦5,000,000

Rate (R) = 5% per annum

Time (T) = 10 years

$$\begin{aligned}\text{Simple Interest} &= (P \times R \times T) \div 100 \\ &= (5,000,000 \times 5 \times 10) \div 100 \\ &= 250,000,000 \div 100 \\ &= \text{N}2,500,000\end{aligned}$$

$$\begin{aligned}\text{Total Amount} &= \text{Principal} + \text{Interest} \\ &= \text{N}5,000,000 + \text{N}2,500,000 \\ &= \text{N}7,500,000\end{aligned}$$

(9a)iii)

- (i) Lack of adequate collateral/security.
- (ii) Lengthy and bureaucratic loan processing procedures.
- (iii) High documentation requirements and administrative delays.

(9b)

- (i) It helps to determine whether the farm business is making profit or loss.
- (ii) It assists management in planning, decision-making and evaluating business performance.

(9c)

- (i) Illiteracy and low educational level of farmers.
- (ii) Resistance to adopting new farming innovations.
- (iii) Poor cooperation between farmers and extension workers.
- (iv) Negative attitude or lack of interest among farmers.

(9d)

- (i) Organising practical demonstrations on farmers' fields.
 - (ii) Providing adequate education and training on new technologies.
 - (iii) Making improved farm inputs readily available and affordable.
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(10a)

- (i) Personal savings.
- (ii) Commercial banks.
- (iii) Cooperative societies.

(10b)

- (i) Provide loans and credit facilities to members.
- (ii) Encourage savings among members.
- (iii) Supply farm inputs at subsidised or affordable prices.
- (iv) Assist members in marketing their farm produce.
- (v) Organise training and agricultural education programmes.
- (vi) Improve the economic and social welfare of members.

(10c)

- (i) Inadequate funding for extension activities.

- (ii) Poor transportation and lack of mobility.
- (iii) Inadequate number of extension personnel.
- (iv) Poor communication facilities and weak farmer-extension contact.

(10d)

- (i) It provides direct personal contact between the extension worker and the farmer.
 - (ii) It enables farmers to ask questions and receive immediate clarification.
 - (iii) It allows the extension worker to understand and solve the specific problems of individual farmers.
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