

AGRIC. SCIENCE (TYPE A)

14

PAPER II

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

SECTION A

- (a) i. Define Agriculture. (2 marks)
ii. Mention **six** branches of agriculture. (6 marks)
- (b) State **three** advantages of disc plough over mouldboard plough. (3 marks)
- (c) Give **five** daily maintenance practices to be carried out on a tractor to ensure its efficiency. (5 marks)
- (a) i. Define land tenure. (2 marks)
ii. Highlight **four** disadvantages of Land Use Act of 1978 in Nigeria. (4 marks)
- (b) Itemise **two** aims of establishing the following programmes in Nigeria:
i. Operation Feed the Nation (2 marks)
ii. Agricultural Development Project (2 marks)
- (c) State **four** precautions taken while operating a tractor on the farm. (4 marks)
- (d) Give **two** advantages of biogas as a source of farm power. (2 marks)

SECTION B

State **four** effects each of the following farm practices on soil:

- i. Bush burning (4 marks)
ii. Ploughing (4 marks)
iii. Organic manuring (4 marks)
iv. Clean clearing (4 marks)
- (a) Give **two** principles of crop rotation. (2 marks)
- (b) Copy and complete **Table 2.1** for a **four** year crop rotation system.

Table 2.1

	PLOT 1	PLOT 2	PLOT 3	PLOT 4
Year 1	Yam	Groundnut	Cassava	Millet
Year 2	-	-	-	-
Year 3	-	-	-	-
Year 4	-	-	-	-

- Enumerate **four** factors that affect land availability for agricultural purposes. (6 marks)
- (d) State **four** problems associated with draining of agricultural land. (4 marks)

SECTION C

5. (a) Discuss Cocoa production under the following headings:
- i. Climatic requirement (1 mark)
 - ii. Soil requirement (1 mark)
 - iii. **Three** cultural practices (3 marks)
 - iv. Method of propagation (1 mark)
 - v. **Two** diseases (2 marks)
- (b) State **four** importance of forest to man. (4 marks)
- (c) Mention **four** effects of diseases on crops. (4 marks)
6. (a) Highlight **four** post-planting operations in yam production. (4 marks)
- (b) Give **four** examples of cultural method of weed control. (4 marks)
- (c) State **four** effects of pesticides on the farm. (4 marks)
- (d) Itemise **four** factors that affect pasture production. (4 marks)

SECTION D

7. (a) Copy and complete Table 2.1.

Table 2.1

Nutrient	Sources	Function
Protein	i _____ ii _____	i _____
Carbohydrate	i _____ ii _____	i _____
Fats and Oil	i _____ ii _____	i _____

(9 marks)

- (b) Mention **four** signs of heat in a farm animal. (4 marks)
- (c) Itemise **three** disadvantages of deep litter system in poultry management. (3 marks)
8. (a) Define paddocking. (2 marks)
- (b) State the difference between persistence and aggressiveness in pasture management. (2 marks)
- (c) Give **one** deficiency symptom each of:
- i. Vitamin B₂ (1 mark)
 - ii. Vitamin C (1 mark)
 - iii. Vitamin D (1 mark)

- d. i. Mention **three** control measures of tuberculosis in farm animal. (3 marks)
- ii. State **three** predisposing factors to disease infection. (3 marks)
- iii. Enumerate **three** economic importance of lice infestation. (3 marks)

SECTION E

9. (a) Define Agricultural Extension. (2 marks)
- (b) Enumerate **six** roles of an Agricultural Extension worker. (6 marks)
- (c) Mention **four** advantages of middlemen in agricultural marketing. (4 marks)
- (d) List **four** functions of marketing in agricultural production. (4 marks)
- 10 (a) Define agricultural financing. (2 marks)
- (b) State **five** importance of cooperative society. (5 marks)
- (c) Highlight **three** types of agricultural insurance. (3 marks)
- (d) Mention **six** ways through which an extension agent achieves success while using group method of disseminating new ideas. (6 marks)

(1ai)

Agriculture is the science, art and business of cultivating the soil, growing crops, and rearing animals for the production of food, fibre, raw materials and other useful products for human use.

(1aii)

(i) Crop production

(ii) Animal production (Livestock farming)

- (iii) Forestry**
- (iv) Fisheries**
- (v) Agricultural Engineering**
- (vi) Agricultural Economics**

(1b)

- (i) It works effectively on hard, dry and sticky soils.**
- (ii) It can cut through weeds and crop residues without clogging.**
- (iii) It covers a wider area faster, thereby increasing field efficiency.**

(1c)

- (i) Check and maintain the engine oil at the correct level.**
 - (ii) Check the radiator and ensure there is enough cooling water.**
 - (iii) Inspect tyre pressure and tighten loose wheel nuts.**
 - (iv) Lubricate all moving parts according to the manufacturer's specification.**
 - (v) Clean the tractor after use and inspect for leaks, worn or damaged parts.**
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(2a)

- (i) Land tenure is the system of land ownership, acquisition, control and use in a particular society.**

(ii)

- (i) Delay in obtaining Certificate of Occupancy**
- (ii) Excessive government control over land allocation**
- (iii) Bureaucratic procedures in acquiring land**
- (iv) Possibility of abuse of power and corruption in land allocation**

(2b)

- (i) Operation Feed the Nation (OFN): to increase food production in Nigeria and to encourage citizens to participate in farming.**
- (ii) Agricultural Development Project (ADP): to improve agricultural production through modern farming techniques, and to provide farmers with extension services, improved inputs and rural infrastructure.**

(2c)

- (i) Do not make sharp turns at high speed.**
- (ii) Avoid operating the tractor on very steep slopes.**
- (iii) Ensure all implements are properly attached before operation.**
- (iv) Do not allow extra passengers on the tractor.**

(2d)

- (i) It is a cheap and renewable source of energy.**
- (ii) It produces clean energy with little environmental pollution.**

(3)

Bush Burning:

- (i) Destroys beneficial soil microorganisms.**
- (ii) Burns organic matter (humus), thereby reducing soil fertility.**
- (iii) Leaves the soil exposed to erosion by wind and water.**
- (iv) Causes loss of soil moisture and reduces the water-holding capacity of the soil.**

Ploughing:

- (i) Loosens the soil and improves aeration.**
- (ii) Improves water infiltration and drainage.**
- (iii) Brings plant nutrients to the surface for crop use.**
- (iv) Encourages root penetration and better crop establishment.**

Organic Manuring:

- (i) Increases soil fertility by adding nutrients.**
- (ii) Improves soil structure and texture.**
- (iii) Increases the soil's water-holding capacity.**
- (iv) Promotes the activities of beneficial soil microorganisms.**

Clean Clearing:

- (i) Reduces competition between crops and weeds.**
 - (ii) Exposes the soil to erosion if left uncovered.**
 - (iii) Makes land preparation and cultivation easier.**
 - (iv) Reduces the amount of organic matter returned to the soil.**
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(4a)

- (i) Leguminous crops should alternate with non-leguminous crops.**
- (ii) Crops belonging to the same family should not be planted consecutively on the same plot.**

(4b)

[TABULATE]

Under Plot 1

- (i) Year 1: Yam**
- (ii) Year 2: Groundnut**
- (iii) Year 3: Cassava**
- (iv) Year 4: Millet**

Under Plot 2

- (i) Year 1: Groundnut**
- (ii) Year 2: Cassava**

- (iii) Year 3: Millet
- (iv) Year 4: Yam

Under Plot 3

- (i) Year 1: Cassava
- (ii) Year 2: Millet
- (iii) Year 3: Yam
- (iv) Year 4: Groundnut

Under Plot 4

- (i) Year 1: Millet
- (ii) Year 2: Yam
- (iii) Year 3: Groundnut
- (iv) Year 4: Cassava

(4c)

- (i) Population pressure and urbanisation.
- (ii) Land tenure system.
- (iii) Government policies and acquisition of land.
- (iv) Industrial and infrastructural development.

(4d)

- (i) High cost of drainage construction and maintenance.
 - (ii) Loss of soil moisture during the dry season.
 - (iii) Difficulty in disposing of drained water.
 - (iv) Soil erosion and nutrient loss may occur after drainage.
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(5a)

Climatic Requirement: Cocoa grows well in areas with high annual rainfall (about 1,500–2,500 mm), warm temperatures (21–32°C), high humidity, and partial shade, especially during its early stage of growth.

Soil Requirement: it requires deep, fertile, well-drained loamy soil rich in organic matter with a slightly acidic pH.

Three Cultural Practices:

- (i) **Weeding:** regular removal of weeds to reduce competition for nutrients, water, and sunlight.
- (ii) **Mulching:** dry leaves and other organic materials are spread around the base of the trees to conserve moisture, suppress weeds, and improve soil fertility.
- (iii) **Pruning:** removal of dead, diseased, and overcrowded branches to improve air circulation, encourage healthy growth, and increase yield.

Method of Propagation: cocoa is propagated mainly by seeds (it can also be propagated vegetatively by budding or grafting).

Two Diseases:

- (i) Black pod disease**
- (ii) Swollen shoot disease**

(5b)

- (i) Forest provides timber for building and furniture.**
- (ii) It supplies fuel wood and charcoal.**
- (iii) It helps to conserve soil and prevent erosion.**
- (iv) It provides habitat for wildlife and helps maintain ecological balance.**

(5c)

- (i) Reduction in crop yield.**
 - (ii) Poor quality of harvested produce.**
 - (iii) Wilting, stunted growth, or death of crops.**
 - (iv) Economic loss to farmers due to increased cost of control and reduced income.**
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(6a)

- (i) Staking**
- (ii) Weeding**
- (iii) Mulching**
- (iv) Fertilizer or manure application**

(6b)

- (i) Hand pulling of weeds**
- (ii) Hoe weeding**
- (iii) Mulching**
- (iv) Cover cropping**

(6c)

- (i) Controls and destroys harmful pests.**
- (ii) Increases crop yield and quality.**
- (iii) May kill beneficial insects and other useful organisms if misused.**
- (iv) Can pollute the environment and leave harmful residues when improperly applied.**

(6d)

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

(7a)

[TABULATE]

Under Nutrient

(i) Protein

(ii) Carbohydrate

(iii) Fats and Oil

Under Sources

(i) Protein: fish meal, soybean meal

(ii) Carbohydrate: maize, cassava

(iii) Fats and Oil: palm oil, groundnut cake

Under Functions

(i) Protein: builds and repairs body tissues; promotes growth

(ii) Carbohydrate: supplies energy for body activities

(iii) Fats and Oil: provides concentrated energy and aids absorption of fat-soluble vitamins

(7b)

(i) Restlessness and frequent bellowing.

(ii) Swollen, reddish vulva with mucus discharge.

(iii) Mounting other animals or standing to be mounted.

(iv) Reduced feed intake and increased activity.

(7c)

(i) Rapid spread of diseases and parasites due to close contact among birds.

(ii) Wet litter may produce ammonia gas, causing respiratory problems.

(iii) High cost of litter materials and frequent replacement.

(8a)

Paddock is the division of a grazing land into smaller enclosed sections called paddocks to enable rotational grazing and proper pasture management.

(8b)

Persistence is the ability of pasture plants to survive and remain productive over a long period despite grazing and environmental conditions, while aggressiveness is the ability of pasture plants to spread rapidly and compete successfully with other plants for nutrients, water, sunlight, and space.

(8c)

(i) Vitamin B₂: curled-toe paralysis (especially in poultry).

- (ii) Vitamin C: bleeding gums (Scurvy).**
- (iii) Vitamin D: rickets (in young animals) or weak bones.**

(8d)

Three control measures of tuberculosis in farm animals:

- (i) Isolate and slaughter infected animals.**
- (ii) Regular testing and inspection of livestock.**
- (iii) Maintain proper sanitation and disinfect animal houses.**

Three predisposing factors to disease infection:

- (i) Poor sanitation and unhygienic environment.**
- (ii) Malnutrition or poor feeding.**
- (iii) Overcrowding of animals.**

Three economic importance of lice infestation:

- (i) Causes irritation, leading to reduced feeding and weight loss.**
 - (ii) Reduces the quality and value of hides, skins, and wool.**
 - (iii) Lowers productivity such as milk, meat, and egg production, resulting in financial loss.**
-

(9a) Agricultural Extension is the process of educating, advising, and assisting farmers to adopt improved agricultural technologies, methods, and innovations in order to increase agricultural productivity and improve their standard of living.

(9b)

- (i) Educates farmers on modern farming techniques and improved technologies.**
- (ii) Demonstrates improved farming methods through practical field demonstrations.**
- (iii) Supplies farmers with information on improved seeds, fertilizers, agrochemicals, and other farm inputs.**
- (iv) Serves as a link between research institutes and farmers by transferring new agricultural innovations.**
- (v) Advises farmers on pest, disease, livestock, and farm management practices.**
- (vi) Assists farmers in forming cooperative societies and obtaining loans, farm inputs, and government assistance.**

(9c)

- (i) They help in the distribution of agricultural produce from farmers to consumers.**
- (ii) They provide storage facilities, thereby reducing post-harvest losses.**
- (iii) They provide market information on prices and demand for farm produce.**
- (iv) They save farmers the time and cost involved in marketing their products directly.**

(9d)

- (i) Buying and assembling farm produce.**

- (ii) Transportation of agricultural products.**
 - (iii) Storage and preservation of produce.**
 - (iv) Grading, packaging, and standardisation of farm products.**
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(10a)

Agricultural financing is the provision of funds or capital to farmers and agricultural enterprises for the production, processing, storage, and marketing of agricultural products.

(10b)

- (i) Provides loans and credit facilities to members.**
- (ii) Encourages savings among members.**
- (iii) Enables members to purchase farm inputs at cheaper prices.**
- (iv) Assists members in marketing their farm produce.**
- (v) Improves the economic and social welfare of members through collective efforts.**

(10c)

- (i) Crop insurance**
- (ii) Livestock insurance**
- (iii) Farm property or equipment insurance**

(10d)

- (i) Organising regular group meetings and discussions.**
- (ii) Using practical demonstrations and field trials.**
- (iii) Communicating in a language understood by the farmers.**
- (iv) Encouraging active participation and interaction among group members.**
- (v) Providing simple, clear, and relevant agricultural information.**
- (vi) Conducting regular follow-up visits to evaluate adoption and solve farmers' problems.**