

2024 END-OF-SEMESTER EXAMS – GENERAL AGRICULTURE 2 SOLUTION
GENERAL AGRICULTURE
SHS ONE

1a. Definition of Agriculture: Agriculture is the science, art, and practice of cultivating the soil, producing crops, and raising livestock for human use and consumption. It encompasses a wide range of activities, including planting, growing, harvesting, and processing crops, as well as breeding and raising animals for food, fiber, and other products.

b. Branches of Agriculture:

i. Crop Science: This branch focuses on the study of crops, including their cultivation, management, breeding, and improvement to enhance yield, quality, and resilience to environmental factors.

ii. Animal Science: Animal science involves the study of domesticated animals, including their breeding, nutrition, health, and management for optimal production of meat, milk, eggs, wool, and other animal products.

c. Problems of Agriculture Development in Ghana: **i. Poor Infrastructure:** Inadequate infrastructure, such as roads, storage facilities, and irrigation systems, hinders efficient agricultural production, transportation, and marketing of agricultural products.

ii. Lack of Access to Credit: Limited access to financial services and credit facilities constrains farmers' ability to invest in modern inputs, technology, and equipment, thereby limiting productivity and profitability.

d. Importance of Agriculture to the National Economy: **i. Food Security:** Agriculture plays a crucial role in providing food for the nation's population, ensuring access to nutritious and affordable food products.

ii. Employment Generation: Agriculture is a significant source of employment, particularly in rural areas, providing livelihoods for millions of people involved in farming, agribusiness, and related sectors.

iii. Contribution to GDP: The agricultural sector contributes to the national Gross Domestic Product (GDP), generating income, foreign exchange earnings, and tax revenues for the government.

iv. Rural Development: Agriculture stimulates economic development in rural communities by generating income, improving infrastructure, and reducing poverty through increased agricultural productivity and market access.

v. Raw Material Supply: Agriculture supplies raw materials to various industries, including agro-processing, textile, and pharmaceutical sectors, supporting industrialization and value addition.

e. Area of the School Garden: Given: Length = 21m Width = 19m

Area = Length × Width = 21m × 19m = 399 square meters

Question 2:

a. **Definition of Agricultural Education:** Agricultural education refers to the process of imparting knowledge, skills, and attitudes related to agriculture and allied fields. It encompasses formal and informal learning experiences aimed at preparing individuals for careers in agriculture, agribusiness, and related industries.

b. Forms of Agricultural Education:

i. **Formal Agricultural Education:** This form of education occurs within formal institutions such as schools, colleges, and universities, where structured curriculum and instructional programs are designed to provide students with theoretical knowledge and practical skills in agriculture.

ii. **Non-Formal Agricultural Education:** Non-formal agricultural education includes workshops, seminars, extension programs, and vocational training conducted outside traditional academic settings. It targets farmers, agribusiness entrepreneurs, and rural communities to enhance their agricultural knowledge and practices.

iii. **Informal Agricultural Education:** Informal agricultural education refers to learning experiences that occur spontaneously through everyday interactions, practical experiences, and observation within the agricultural environment. It involves informal mentorship, on-the-job training, and experiential learning.

c. Importance of Agricultural Education:

i. **Capacity Building:** Agricultural education enhances the knowledge, skills, and competencies of individuals involved in the agricultural sector, empowering them to adopt modern practices, technologies, and innovations for sustainable agricultural development.

ii. **Innovation and Research:** Agricultural education fosters research and innovation by providing platforms for students and professionals to conduct research, develop new technologies, and address emerging challenges in agriculture and rural development.

iii. **Entrepreneurship Development:** Agricultural education promotes entrepreneurship by equipping individuals with business management, marketing, and leadership skills necessary for starting and managing agricultural enterprises, agribusinesses, and value chains.

iv. **Sustainable Development:** Agricultural education promotes sustainable agricultural practices, environmental stewardship, and natural resource management to ensure the long-term viability of agricultural systems and ecosystems.

d. **Quantity of Feed for the Trough:** Given: Length = 93cm Width = 15cm Depth = 9cm

Volume of the trough = Length $\times$ Width $\times$ Depth = 93cm $\times$ 15cm $\times$ 9cm = 12555 cubic centimeters

Therefore, the quantity of feed required to fill the trough to the brim is 12555 cubic centimeters.

Question 3:

a. Roles of Science and Technology in Agriculture:

- i. **Increased Productivity:** Science and technology contribute to the development of high-yielding crop varieties, improved livestock breeds, and innovative agricultural practices that enhance productivity and efficiency in food production.
- ii. **Sustainable Practices:** Science and technology enable the adoption of sustainable agricultural practices, precision farming techniques, and integrated pest management strategies to minimize environmental impact, conserve natural resources, and promote resilience to climate change.
- iii. **Market Access:** Science and technology facilitate market access through value addition, food processing, packaging, and distribution systems, enabling farmers to reach domestic and international markets and improve their incomes.

b. Roles of the Government in Agriculture Development:

- i. **Policy Formulation:** The government formulates agricultural policies, regulations, and incentives to create an enabling environment for investment, innovation, and growth in the agricultural sector.
- ii. **Infrastructure Development:** The government invests in rural infrastructure, such as roads, irrigation, storage facilities, and market access, to support agricultural production, transportation, and marketing activities.

c. Roles of Research Institutions in Agriculture Development:

- i. **Technology Development:** Research institutions conduct applied research, innovation, and technology transfer activities to develop new crop varieties, breeding techniques, pest management strategies, and sustainable agricultural practices.
- ii. **Capacity Building:** Research institutions provide training, extension services, and technical assistance to farmers, extension agents, policymakers, and other stakeholders to enhance their knowledge, skills, and capacities in agriculture and rural development.

d. Completed Table:

Quantity	Unit	Symbol
Mass	Kilogram	kg
Length	Meter	m
Electric Current	Ampere	A
Time	Second	s
Temperature	Kelvin	K

e. Area of Circular Garden Plot:

Given: Area = 1386m^2

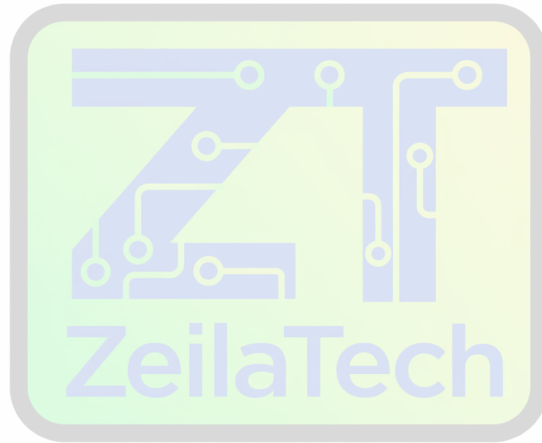
Formula for the area of a circle: Area = πr^2

Therefore, $\pi r^2 = 1386\text{m}^2$

Solving for radius (r): $r^2 = 1386\text{m}^2 / \pi$ $r^2 \approx 441.8$ $r \approx \sqrt{441.8} \approx 21\text{m}$ (approx.)

The circumference of the circular garden plot can be found using:

Circumference = $2\pi r$ Circumference $\approx 2\pi(21\text{m}) \approx 132\text{m}$ (approx.)



Smart Learning Tools