

2025 END OF SEMESTER EXAM – AGRICULTURAL SCIENCE 2 SOLUTION
PAPER 2

1. (a) Challenges of Using Emerging Technology in Farming

- **High Initial Cost:** Purchasing modern equipment like drones, GPS systems, and automated machinery is very expensive.
- **Lack of Technical Know-how:** Many local farmers lack the skills and training required to operate and maintain advanced agricultural technology.
- **Poor Maintenance and Repair Services:** There is a shortage of skilled technicians and spare parts for modern farm equipment in many rural areas.
- **Inadequate Infrastructure:** Poor electricity supply, limited internet connectivity, and bad roads hinder the effective use of many modern technologies.
- **Small Farm Sizes:** Most farms are too small to justify the high cost of large-scale, advanced machinery, making them uneconomical.
- **Resistance to Change:** Some farmers are traditional and may be hesitant to adopt new, unproven methods over their established practices.

1. (b) Sources of Capital for Vegetable Farming

- **Personal Savings:** Using money saved by the farmer from previous work or farm sales.
- **Loans from Commercial Banks:** Obtaining credit from financial institutions like Agricultural Development Bank or commercial banks.
- **Government Programs:** Accessing funds from government initiatives and agricultural support schemes (e.g., Planting for Food and Jobs).
- **Cooperatives and Farmer Associations:** Getting loans or financial support from a farmer-based organization.
- **Family and Friends:** Borrowing money from relatives or friends, often with flexible repayment terms.
- **Microfinance Institutions:** Securing small loans from institutions that cater to small-scale entrepreneurs.

1. (c) Importance of Irrigation Systems

- **Year-Round Crop Production:** Irrigation allows farmers to grow crops during the dry season, ensuring a continuous food supply and income.
- **Increased Crop Yield:** Providing a consistent and adequate water supply to crops leads to healthier plants and significantly higher yields.
- **Cultivation of Dry/Arid Lands:** It makes it possible to farm in areas with low or unreliable rainfall, turning unproductive land into fertile farms.
- **Efficient Water Use:** Modern irrigation methods like drip irrigation deliver water directly to the plant roots, minimizing waste through evaporation.
- **Improved Crop Quality:** A steady water supply prevents water stress in plants, resulting in better quality vegetables and fruits.
- **Flexibility in Planting Times:** Farmers are not solely dependent on the start of the rainy season and can plant their crops at the most economically favorable times.