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SECTION A: THEORY (80 Marks)
Question 1

A school agriculture club plans to start a vegetable farming project.

a) THREE ways the club can access land for agricultural use (3 marks)
i. Renting land from a landowner
ii. Buying/purchasing land
iii. Using school-owned land
iv. Community land arrangement / borrowing land
v. Government/County government land lease

b) THREE factors to consider when evaluating the suitability of land (3 marks)
i. Soil fertility / nutrient content
ii. Soil type (sandy, loamy, clay)
iii. Water availability / drainage
iv. Topography / slope of land
v. Climate conditions (rainfall, temperature)
vi. Land size / accessibility
vii. Presence of pests/diseases

c) TWO reasons why land is important in agricultural production (2 marks)
i. It provides space for crop and livestock production
ii. It provides nutrients and minerals for plant growth
iii. It serves as a source of livelihood
iv. It provides raw materials for agricultural processing

Question 2
Observation of different soil layers in a farm.

a) **Name the types of soil labeled Q, R, S (3 marks)**

b) TWO main categories of soil properties important in crop production (2 marks)
i. Physical properties (texture, structure, color, porosity)
ii. Chemical properties (pH, nutrient content, salinity)
Other: Biological properties (microorganisms, organic matter)

c) Identify the soil activity shown (1 mark)

- Soil Ph. test

d) ONE test used to determine each soil property (3 marks)
i. Soil texture: Feel test (ribbon test), sieve analysis, Bouyoucos hydrometer method
ii. Soil pH: Using pH meter, litmus paper, or universal indicator solution
iii. Soil porosity: Water infiltration test, bulk density test, or porosity calculation

e) THREE ways soil profile influences crop production (3 marks)
i. Depth affects root penetration and anchorage
ii. Texture affects water retention and drainage
iii. Fertility affects nutrient availability for crops
iv. Structure affects aeration and tillage ease

Question 3
Preparing a fallow piece of land for maize.

a) FOUR activities during land preparation (4 marks)
i. Clearing vegetation / weeding
ii. Ploughing / primary tillage
iii. Harrowing / secondary tillage
iv. Leveling the land
v. Making planting rows / ridges
vi. Applying manure / fertilizers

b) Differences between primary and secondary cultivation (4 marks)

Primary Cultivation	Secondary Cultivation
Done first to loosen soil	Done after primary tillage to refine soil
Uses ploughs, disc ploughs	Uses harrows, cultivators, rollers
Breaks up hard soil	Smoothens seedbed and removes weeds
Aims at deep soil turning	Aims at fine soil structure and aeration

c) TWO conservation tillage practices (4 marks)
i. Minimum tillage / reduced tillage
ii. Strip cropping / contour ploughing
iii. Mulching to conserve moisture
iv. Zero tillage / direct planting

Question 4
Managing tomatoes and capsicum.

a) Identify the fruits X and Y (2 marks)

- X: Tomato
- Y: Capsicum (Bell pepper)

b) THREE pruning practices (3 marks)
i. Pinching off apical buds to control height
ii. Removing diseased or damaged leaves
iii. Thinning excessive shoots
iv. Removing suckers / lateral shoots
v. Cutting old stems to encourage new growth

c) THREE reasons why top dressing is important (3 marks)
i. Provides additional nutrients for growth
ii. Increases crop yield
iii. Corrects nutrient deficiencies
iv. Improves plant vigor and fruit quality

d) FOUR management practices for tomato seedlings (4 marks)
i. Watering regularly
ii. Providing shade / protecting from pests
iii. Hardening seedlings before transplanting
iv. Applying fertilizers / nutrients
v. maintaining proper spacing

Question 5

Nursery bed establishment.
a) Identify the activity shown (1 mark)
- Shading/mulching

b) FOUR crops established through a nursery (4 marks)
i. Tomatoes
ii. Capsicum
iii. Cabbage
iv. Onions
v. Cauliflower
vi. Eggplants / Aubergine
vii. Lettuce

c) FOUR management practices in a nursery bed (4 marks)
i. Regular watering
ii. Weed control
iii. Thinning seedlings
iv. Fertilizer application
v. Protecting from pests and diseases
vi. Providing adequate light and ventilation

d) TWO reasons why nursery establishment is preferred (4 marks)
i. Ensures healthy and strong seedlings
ii. Reduces crop failure in the field
iii. Allows for early crop production
iv. Facilitates easier pest and disease management

Question 6
Weeds growing among crops.
a) Identify the activity shown (1 mark)
- Weeding / weed control

b) Classify weeds based on life cycle (3 marks)
i. Annual weeds (complete life cycle in one year)
ii. Biennial weeds (complete life cycle in two years)
iii. Perennial weeds (live for more than two years)

c) Identify the name of the weed U and V (2 marks)
U: oxalis
V: pigweed

d) FOUR methods used to control weeds (4 marks)
i. Manual weeding / hand pulling
ii. Mechanical weeding / hoeing
iii. Chemical control / herbicides
iv. Mulching to suppress weeds
v. Crop rotation to reduce weed population

e) TWO economic effects of weeds on farming households (2 marks)
i. Reduced crop yields / lower income
ii. Increased cost of production (labor, herbicides)
iii. Contamination of harvested produce
iv. Competition for nutrients, water, and sunlight

Question 7

Harvesting farm produce.

a) Identify crops being harvested E and F (2 marks)
E: Tomatoes
F: Maize

b) FOUR factors determining harvesting time (4 marks)
i. Maturity stage of the crop / physiological maturity
ii. Moisture content / dryness
iii. Market demand / price
iv. Weather conditions (avoiding rain)
v. Intended use (seed, food, processing)

c) FOUR post-harvest practices to reduce losses (4 marks)
i. Proper storage / silo or warehouse
ii. Drying of crops to reduce moisture
iii. Sorting and grading of produce
iv. Packaging to prevent damage
v. Transport under safe conditions
vi. Pest and disease control in storage