

MARKING SCHEME



SECTION B: STRUCTURED QUESTIONS (30 Marks)

Question Number	Answer
1	B
2	A
3	B
4	C
5	B
6	C
7	B
8	C
9	C
10	B
11	B
12	C
13	D
14	C
15	B

16	B
17	A
18	C
19	B
20	C
21	A
22	B
23	A
24	C
25	B
26	B
27	B
28	C
29	A
30	B

SECTION B: STRUCTURED QUESTIONS (50 MARKS)

Part 1: Agriculture – 25 Marks

31. Identify and explain two causes of soil erosion and one method used to control it. (3marks)

Causes of soil erosion:

- i. **Deforestation:** Removal of trees leaves the soil exposed to the direct impact of rain and wind, leading to easy dislodgement and transport of soil particles.

- ii. **Overgrazing:** Excessive grazing by livestock removes vegetation cover, compacts the soil, and exposes it to erosion by wind and water.
- iii. **Poor farming practices:** Tilling uphill and downhill, leaving land bare, and not implementing contour farming can lead to increased water runoff and soil loss.
- iv. **Strong winds:** High winds can carry away loose topsoil, especially in dry, open areas.
- v. **Heavy rainfall:** Intense rainfall can dislodge and transport large amounts of soil, especially on sloped land.

Method used to control soil erosion:

- i. **Terracing:** Constructing level platforms or steps on slopes to reduce the speed of water runoff and prevent soil from being washed away.
- ii. **Contour farming:** Plowing and planting across the slope of the land, rather than up and down, to create ridges that slow down water flow and trap soil.
- iii. **Afforestation/Reforestation:** Planting trees to establish a protective cover that binds the soil with their roots and reduces the impact of rain and wind.
- iv. **Cover cropping:** Planting crops that cover the soil surface between main crops to protect it from erosion.
- v. **Mulching:** Covering the soil with organic materials like straw or leaves to reduce the impact of raindrops, slow down runoff, and retain moisture.
- vi. **Gabions:** Wire cages filled with rocks used to stabilize slopes and control water flow in gullies.

32. Describe how water harvesting can be done using: (3marks)

a) Gutters:

- i. Gutters are installed along the edges of a roof to collect rainwater.
- ii. The collected water then flows through the gutters and down a downspout into a storage container like a water tank or drum.
- iii. This method is effective for collecting clean water for household use or irrigation.

b) Water tanks:

- iv. Water tanks are large containers made of plastic, concrete, or metal, used to store collected rainwater.
- v. They are connected to downspouts from gutters or other water collection systems.
- vi. Water tanks allow for the storage of significant volumes of water for use during dry periods.

33. Explain the importance of growing trees on the farm. (4marks)

- **a) Mention two tree species that improve soil fertility.**
 - i. *Acacia* species (e.g., *Acacia nilotica*)
 - ii. *Grevillea robusta* (Silky Oak)
 - iii. *Calliandra calothyrsus*
 - iv. *Leucaena leucocephala*
 - v. Many leguminous trees (e.g., *Faiderbhia albida*) due to their nitrogen-fixing capabilities.
- **b) How do trees help in water retention?**
 - i. **Reduced evaporation:** The canopy of trees shades the soil, reducing direct sunlight exposure and thus minimizing water evaporation from the soil surface.
 - ii. **Improved soil structure:** Tree roots bind soil particles together, improving soil aggregation and creating pores that allow for better water infiltration and retention.
 - iii. **Increased organic matter:** Falling leaves and decaying plant material from trees contribute to organic matter in the soil, which improves its water-holding capacity.
 - iv. **Reduced runoff:** Tree roots and the forest floor litter slow down surface water runoff, allowing more time for water to infiltrate the soil rather than flowing away.

34. A poultry farmer wants to improve hygiene in the fold. (5marks)

a) List three hygiene practices to observe in poultry management.

- i. Regularly clean and disinfect feeding and watering equipment.
- ii. Remove droppings and soiled litter frequently.
- iii. Provide fresh, clean drinking water daily.
- iv. Ensure proper ventilation in the poultry house.
- v. Control pests like rodents and insects.
- vi. Quarantine new birds before introducing them to the main flock.
- vii. Dispose of dead birds properly.
- viii. Wash hands before and after handling poultry.

b) Mention two signs of a diseased chicken.

- ix. Loss of appetite and reduced feed intake.
- x. Ruffled feathers and dull appearance.
- xi. Drooping wings or lethargy.
- xii. Diarrhea or abnormal droppings.

- xiii. Respiratory signs like sneezing, coughing, or nasal discharge.
- xiv. Swelling of the head or joints.
- xv. Pale comb and wattles.
- xvi. Lameness or difficulty walking.
- xvii. Reduced egg production or abnormal eggs.

35. Using your knowledge of crop management: (5marks)

a) Name three methods of controlling crop pests.

- i. **Cultural methods:** Crop rotation, timely planting and harvesting, proper sanitation (removing crop residues), trap cropping, use of resistant varieties.
- ii. **Biological methods:** Introducing natural enemies of pests (e.g., ladybugs for aphids), using beneficial microorganisms.
- iii. **Physical/Mechanical methods:** Hand picking pests, trapping, barriers, mulching, hot water treatment of seeds.
- iv. **Chemical methods:** Applying pesticides or insecticides (use with caution and as a last resort).

b) What are two visible signs of disease in vegetable crops?

- v. **Wilting:** Drooping of leaves or stems due to lack of water uptake or blocked vascular tissue.
- vi. **Discoloration:** Yellowing (chlorosis), browning (necrosis), or other unusual color changes in leaves, stems, or fruits.
- vii. **Spots or lesions:** Formation of distinct spots, lesions, or cankers on leaves, stems, or fruits.
- viii. **Stunted growth:** Abnormally small or underdeveloped plants.
- ix. **Distortion:** Malformation of leaves, stems, or fruits (e.g., curling, puckering).
- x. **Abnormal growths:** Galls, swellings, or cankers.
- xi. **Presence of mold or mildew:** White, powdery, or fuzzy growth on plant surfaces.

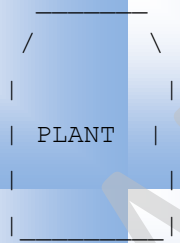
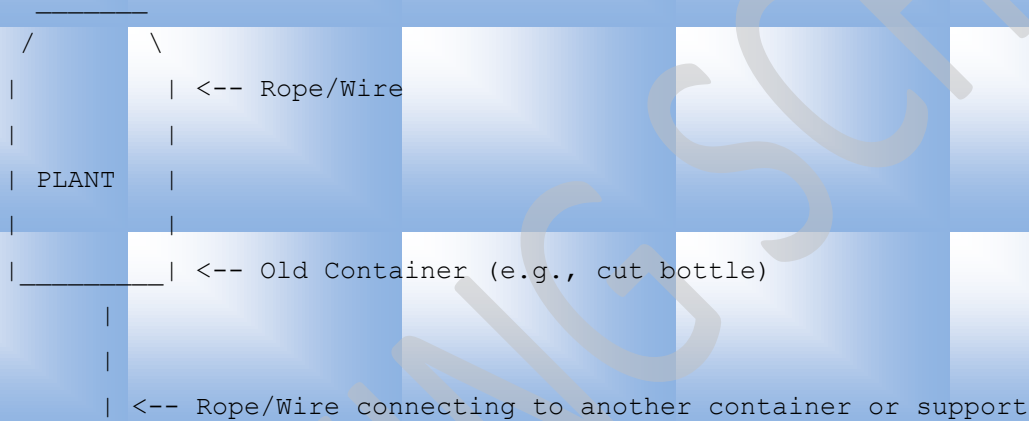
36. Outline the steps in constructing a suspended garden using old containers. Include at least one sketch. (5marks)

Steps:

- i. **Gather materials:** Collect old plastic bottles, tires, or other suitable containers. You will also need strong rope or wire, a knife or scissors, soil, and seedlings/seeds.

- ii. **Prepare containers:** Clean the containers thoroughly. For plastic bottles, cut openings on one side, leaving the ends intact to hold soil. For tires, they can be stacked or hung as is. Ensure drainage holes are present if not naturally occurring.
- iii. **Create hanging mechanism:** For bottles, pierce holes at both ends and thread strong rope or wire through them to create a suspension system. For tires, you can use chains or strong ropes to hang them.
- iv. **Fill with soil:** Fill the prepared containers with a suitable potting mix or fertile soil.
- v. **Plant:** Plant your desired seedlings or sow seeds into the soil in the containers.
- vi. **Hang:** Suspend the containers from a strong support structure like a wooden pole, fence, or wall, ensuring they are stable and receive adequate sunlight.
- vii. **Water:** Water the plants regularly, ensuring proper drainage.

• **Sketch :**



(Imagine multiple containers hanging vertically or horizontally, connected by ropes or wires to a main support structure.)

Part 2: Nutrition – 25 Marks

37. Define a balanced diet and list three nutrients that make it complete. (3marks)

Definition of a balanced diet: A balanced diet is one that provides all the essential nutrients in the correct proportions needed for healthy growth, development, and maintenance of the body. It includes appropriate amounts of carbohydrates, proteins, fats, vitamins, minerals, and water.

Three nutrients that make it complete:

- i. Carbohydrates
- ii. Proteins
- iii. Fats/Lipids
- iv. Vitamins
- v. Minerals
- vi. Water

38. Mention two cooking methods that preserve food nutrients. For each method, explain how it works.

(4marks)

i. Steaming:

- i. **How it works:** Food is cooked by the hot vapor (steam) from boiling water, without direct contact with the water.
- ii. **Preservation of nutrients:** This method minimizes nutrient loss because water-soluble vitamins (like B vitamins and Vitamin C) and minerals do not leach into the cooking water. The gentle heat also helps preserve heat-sensitive nutrients.

ii. Stir-frying:

- iii. **How it works:** Food is cooked quickly in a small amount of oil over high heat while being continuously stirred or tossed.
- iv. **Preservation of nutrients:** The short cooking time and high heat reduce the exposure of nutrients to prolonged heat, which can cause degradation. The minimal use of water also prevents leaching of water-soluble vitamins.

iii. Grilling/Roasting (with minimal fat):

- v. **How it works:** Food is cooked using direct or indirect dry heat.

- vi. **Preservation of nutrients:** Since no water is involved, water-soluble nutrients are not lost through leaching. The dry heat can help retain some nutrients, especially if not overcooked.

iv. Microwaving:

- vii. **How it works:** Food is cooked using electromagnetic radiation that causes water molecules within the food to vibrate, generating heat.
- viii. **Preservation of nutrients:** Often uses less water and shorter cooking times than traditional methods, which can help retain more nutrients, especially water-soluble vitamins.

39. Your class is preparing to serve lunch. (4marks)

a) List two table manners to observe during meals.

- i. Wash hands before eating.
- ii. Chew with your mouth closed.
- iii. Do not talk with food in your mouth.
- iv. Do not make loud noises while eating.
- v. Wait for everyone to be served before starting to eat (unless permitted).
- vi. Use cutlery correctly.
- vii. Ask to be excused before leaving the table.
- viii. Do not reach across the table; ask for items to be passed.
- ix. Use a napkin properly.
- x. Be polite and engage in pleasant conversation.

b) Describe the blue plate method of serving.

- xi. In the blue plate method, food is portioned and arranged directly onto individual plates in the kitchen or serving area before being brought to the diners. Each plate is typically pre-arranged with a balanced meal according to the planned menu. This method allows for controlled portion sizes and an aesthetically pleasing presentation.

40. Describe the step-by-step procedure for making homemade soap using local materials. (5marks)

Note: Making soap with lye (caustic soda) involves chemical reactions and requires extreme caution due to the corrosive nature of lye. Safety equipment (gloves, eye protection) and adult supervision are crucial. This

simplified answer assumes the use of a safe, traditional method or outlines the general steps. For practical application in a school setting, using a melt-and-pour soap base would be safer.

Using a traditional method (e.g., ash lye):

- i. **Preparation of Ash Lye:** Collect hardwood ash (e.g., from cooking fires). Place the ash in a container with a small hole at the bottom (e.g., a plastic bucket). Slowly pour hot water over the ash. The liquid that drains out is the lye (potash). Test its strength (e.g., an egg floats in it).
- ii. **Preparation of Fat/Oil:** Melt and strain animal fat (tallow or lard) or use vegetable oils (e.g., palm oil, coconut oil). Ensure it is clean and free of impurities.
- iii. **Mixing (Saponification):** Slowly and carefully add the cooled ash lye to the melted fat/oil while continuously stirring. The mixture will start to thicken. This process is called saponification.
- iv. **"Trace" stage:** Continue stirring until the mixture reaches a "trace" – it will thicken to a consistency like thin pudding, and a spoonful drizzled on the surface will leave a temporary mark.
- v. **Adding additives (Optional):** At this stage, you can add natural colorants, essential oils for fragrance, or exfoliants (e.g., oat bran).
- vi. **Pouring into molds:** Pour the thickened soap mixture into molds (e.g., old milk cartons, plastic containers lined with plastic wrap).
- vii. **Curing:** Allow the soap to cure in the molds for 24-48 hours. Then, unmold and cut into bars. Let the bars cure further in a well-ventilated area for several weeks (4-6 weeks is ideal) to allow the saponification process to complete and the soap to harden.

41. A pupil is sewing a work bag. (4marks)

a) Identify two types of seams she can use.

- i. Plain seam
- ii. French seam
- iii. Flat felled seam
- iv. Lapped seam
- v. Bound seam

• b) State the importance of each seam.

- i. **Plain Seam:**

Importance: It is the most basic and common seam, used for joining two pieces of fabric. It is versatile and suitable for most garments and household items. It creates a flat, smooth seam line when pressed open.

ii. **French Seam:**

Importance: It is a durable and neat seam that encloses the raw edges of the fabric, preventing fraying. It is ideal for sheer fabrics, lingerie, and items where a clean finish is desired on both sides.

iii. **Flat Felled Seam:**

Importance: This seam is very strong and durable, enclosing all raw edges. It lies flat against the fabric and is commonly used for sportswear, denim (jeans), and children's clothing, as it can withstand considerable strain and washing.

iv. **Lapped Seam:**

Importance: Used when one fabric edge is overlapped onto another. It's often used with non-fraying fabrics or for decorative purposes, and can be easily topstitched.

42. Explain two ways of preserving milk at home and their importance to nutrition. (5marks)

i. Boiling/Pasteurization:

i. **Way of preservation:** Milk is heated to a high temperature (e.g., just below boiling for boiling, or specific temperatures for pasteurization, like for 15 seconds for HTST pasteurization) and then rapidly cooled.

ii. **Importance to nutrition:**

- **Eliminates harmful microorganisms:** Boiling/pasteurization kills most pathogenic bacteria, yeasts, and molds, making the milk safe for consumption and preventing foodborne illnesses. This ensures the nutritional benefits of milk can be safely obtained.
- **Extends shelf life:** By reducing microbial load, the spoilage process is significantly slowed down, allowing milk to be stored for a longer period at home without refrigeration (if boiled and kept covered, though refrigeration is still best practice after opening). This ensures a continuous supply of milk's nutrients.

ii. Cooling/Refrigeration:

iii. **Way of preservation:** Milk is stored at low temperatures, typically between in a refrigerator or cold basin.

iv. **Importance to nutrition:**

- **Slows down microbial growth:** Low temperatures significantly inhibit the multiplication of spoilage bacteria, thereby preserving the freshness and nutritional quality of the milk for a longer duration.
- **Minimizes nutrient degradation:** Many vitamins (e.g., riboflavin) and other nutrients in milk can be degraded by heat or light. Refrigeration helps in retaining these heat-sensitive nutrients by reducing the rate of chemical reactions. It helps maintain the milk's flavor and texture, encouraging its consumption for its nutritional value.

iii. Fermentation (e.g., making Maziwa Lala/Yoghurt):

v. **Way of preservation:** Specific beneficial bacteria (lactic acid bacteria) are introduced to milk, which convert lactose into lactic acid. This increases the acidity of the milk.

vi. **Importance to nutrition:**

- **Enhances digestibility:** The fermentation process breaks down lactose, making fermented milk products easier to digest for individuals who are lactose intolerant.
- **Adds beneficial probiotics:** Fermented milk products introduce beneficial bacteria to the gut, which can improve gut health, nutrient absorption, and boost the immune system.
- **Extends shelf life:** The increased acidity created by fermentation inhibits the growth of spoilage microorganisms, preserving the milk for an extended period.

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