Spec agric pp1 marking scheme

SECTION A (30 Marks)

Answer all questions in this section.

1. **State four factors that determine the type of farming system to be adopted by a farmer. (2 marks)**
    - Climate/Environmental factors (e.g., rainfall, temperature).
    - Topography/Terrain of the land.
    - Availability of capital.
    - Market availability and demand.
    - Security and land tenure system.
2. **Give four reasons for practicing shifting cultivation. (2 marks)**
    - To allow the land to regain fertility naturally.
    - To reduce the buildup of pests and diseases.
    - Where land is abundant and population is low.
    - Low capital investment requirements.
3. **State four reasons for burning as a method of land clearing. (2 marks)**
    - It is a cheap and fast method.
    - It kills pests and disease-causing organisms.
    - It destroys weeds and their seeds.
    - It adds nutrients like phosphorus and potassium (ash) to the soil.
4. **Name three types of water pipes used on the farm. (1½ marks)**
    - P.V.C (Polyvinyl Chloride) pipes.
    - G.I (Galvanized Iron) pipes.
    - H.D.P.E (High-Density Polyethylene) pipes.
5. **State four reasons for leveling a nursery bed. (2 marks)**
    - To ensure uniform water distribution/prevent waterlogging in some areas.
    - To prevent soil erosion within the bed.
    - To facilitate uniform sowing depth of seeds.
    - To ensure uniform germination and growth of seedlings.
6. **State four factors that determine the depth of planting. (2 marks)**
    - Size of the seed (larger seeds are planted deeper).
    - Soil moisture content.
    - Soil type/texture (deeper in sandy soils, shallower in clay).
    - Type of germination (epigeal vs. hypogeal).
7. **Define the following terms as used in crop production. (1½ marks)**
    - **Pricking out:** The act of removing extra seedlings from a nursery bed to a seedling bed/bag to reduce overcrowding.
    - **Hardening off:** The process of gradually exposing seedlings to harsher environmental conditions to prepare them for transplanting.
    - **Seedbed:** A piece of land prepared and ready for planting seeds.

8. **State four disadvantages of communal land tenure system. (2 marks)**
    - No incentive for long-term investment/land improvement.
    - Difficulty in obtaining agricultural credit/loans (no title deeds).
    - Leads to overgrazing and land degradation.
    - Promotes spread of livestock pests and diseases.
9. **List four types of records a poultry farmer should keep. (2 marks)**
    - Egg production record.
    - Feeding record.
    - Health/Treatment record.
    - Labor record.
    - Marketing/Sales record.
10. **State four reasons for growing crops in a glasshouse. (2 marks)**
    - To protect crops from adverse weather (frost, heavy rain).
    - To allow for off-season production.
    - To facilitate easier control of pests and diseases.
    - To maximize yields through controlled environment (temperature/humidity).
11. **Give four ways in which weeds are adapted to survive in the farm. (2 marks)**
    - Production of many seeds.
    - Long seed dormancy.
    - Efficient dispersal mechanisms (wind, water, animals).
    - Ability to propagate vegetatively (e.g., via rhizomes).
12. **State four factors that determine the spacing of a crop. (2 marks)**
    - Purpose of the crop (e.g., fodder vs. grain).
    - Growth habit of the crop (spreading vs. upright).
    - Soil fertility status.
    - Moisture availability.
    - Machinery to be used in operations.
13. **Give four reasons for carrying out minimum tillage. (2 marks)**
    - To maintain soil structure.
    - To conserve soil moisture.
    - To reduce the cost of production (labor and machinery).
    - To prevent soil erosion by maintaining surface cover.
14. **Name four categories of farm tools. (2 marks)**
    - Garden tools.
    - Workshop tools.
    - Livestock tools.
    - Masonry tools.
    - Plumbing tools.
15. **State four effects of over-application of nitrogenous fertilizers. (2 marks)**
    - Causes excessive vegetative growth at the expense of fruiting.
    - Leads to "lodging" in cereals (weak stems).
    - Increases susceptibility to pests and diseases.
    - Delays crop maturity.
    - Can lead to soil acidification over time.
16. **State four properties of soil that are influenced by soil texture. (2 marks)**
    - Water holding capacity.

- Soil aeration/porosity.
- Nutrient retention/Cation Exchange Capacity.
- Ease of tillage/workability.

SECTION B (20 Marks)

Answer all questions in this section.

17. **The diagram below shows a method of layering. Study it and answer the questions that follow.**
    - **a) Identify the method of layering.**
        - Marcotting / Air layering.
    - **b) Name the parts labeled K and L.**
        - **K:** Moist rooting medium (e.g., moss, soil).
        - **L:** Polythene sheet/sleeve.
    - **c) State two properties of the material used in part K.**
        - High water-holding capacity.
        - Well-aerated.
    - **d) Give one reason why the bark is removed.**
        - To interrupt the flow of food (phloem) and stimulate root formation at the cut site.
18. **The diagram below shows a survey equipment. Study it and answer the questions.**
    - **a) Identify the equipment.**
        - Optical square / Cross-staff.
    - **b) State the use of the equipment.**
        - Setting out right angles (90°) during farm surveying.
    - **c) Name two other equipments used together with the one above.**
        - Measuring tape / Chain.
        - Ranging rods.
        - Pegs.
19. **a) Identify the method of irrigation.**

- Drip irrigation / Trickle irrigation.

b) State two advantages of this method.

- It conserves water as it is delivered directly to the root zone, minimizing wastage through evaporation or runoff.
- It reduces weed growth because only the area around the crop is wetted, leaving the inter-row spaces dry.
- It can be used on sloped or irregular terrain where other methods like surface irrigation would cause erosion.
- Soluble fertilizers can be applied through the system (fertigation), ensuring efficient nutrient uptake.
- It prevents the spread of fungal diseases as the foliage of the plant remains dry.

•c) Give two disadvantages of this method.

- It has a high initial capital cost for the installation of pipes, emitters, and pumps.
- The emitters or nozzles are prone to blockage by soil particles, chemical precipitates, or algae.
- It may interfere with some farm operations, such as mechanical weeding or cultivation

20. **The diagram below shows a common weed. Study it and answer the questions.**
    - **a) Identify the weed.**
        - Couch grass (*Digitaria abyssinica*).
    - **b) Why is it difficult to control the weed?**
        - It has underground rhizomes that are difficult to remove completely and can grow into new plants if broken.
    - **c) State the category of the weed based on the morphology.**
        - Narrow-leaved weed / Monocot weed.

SECTION C (40 Marks)

Answer any two questions from this section.

21. **a) Describe the physical methods of pest control. (10 marks)**
    - **Handpicking:** Physically removing and destroying pests like caterpillars.
    - **Trapping:** Using devices to catch pests (e.g., lethal traps for rodents).
    - **Flooding:** Submerging fields to drown underground pests like moles.
    - **Fencing:** Using barriers to keep out larger pests like monkeys or wild pigs.
    - **Use of physical barriers:** E.g., mesh wires to prevent birds from reaching crops.
    - **Heat treatment:** Using steam or solarization to kill soil-borne pests.
    - **Scaring:** Using scarecrows or noise-makers to drive away birds.

    b) Explain five factors that determine the choice of a nursery site. (10 marks)

    - **Water availability:** Must be near a permanent and clean water source.
    - **Topography:** Should be on a gentle slope or level ground to prevent erosion and ease management.
    - **Soil type:** Prefer well-drained, fertile, loamy soil.
    - **Security:** Needs protection from theft, wild animals, and livestock.
    - **Shelter/Protection:** Should be shielded from strong winds and excessive direct sunlight.
    - **Accessibility:** Must be easy to reach for regular monitoring and transport of seedlings.
22. **a) Describe the procedure of harvesting sugarcane. (5 marks)**
    - Test for maturity (usually 14–22 months depending on variety).
    - Burn the field (optional) to remove trash and snakes.
    - Cut the cane at ground level using a sharp panga.
    - Remove the green top.
    - Deliver to the factory within 48 hours to prevent sugar loss.

    b) Explain five factors that determine the quality of silage. (10 marks)

- **Type of crop used:** Nutritive value of the forage at ensiling.
- **Stage of growth:** Best at the flowering stage for high nutrients.
- **Moisture content:** Should be around 65–75%.
- **Speed of filling and compaction:** Must be fast and thorough to exclude air.
- **Air-tightness of the silo:** Must be completely sealed to allow anaerobic fermentation.
- **Amount of additives:** E.g., molasses to provide energy for lactic acid bacteria.

c) State five advantages of crop rotation. (5 marks)

- Controls soil-borne pests and diseases.
- Controls weeds.
- Improves soil fertility (when legumes are included).
- Improves soil structure.
- Reduces soil erosion.
- Ensures maximum utilization of soil nutrients.

23. **a) Describe the importance of irrigation in farming. (10 marks)**
    - Allows for crop production in arid and semi-arid areas.
    - Ensures a steady supply of crops throughout the year (continuous production).
    - Increases crop yields per unit area.
    - Enables the growth of high-value crops that require much water.
    - Mitigates the effects of unpredictable rainfall/drought.
    - Makes it possible to reclaim land for agricultural use.

b) Explain five importance of drainage in farming. (10 marks)

- **Improves soil aeration:** Removes excess water allowing air into soil pores for root respiration.
- **Increases soil temperature:** Dry soil warms up faster than waterlogged soil, aiding germination.
- **Reduces accumulation of toxic salts:** Proper drainage leaches out harmful salts.
- **Controls soil-borne diseases:** Prevents conditions that favor pathogens like those causing root rot.
- **Promotes deep root development:** Prevents roots from being confined to the surface due to a high water table.
- **Reduces soil erosion:** Well-drained soils absorb more water, reducing surface runoff.