Indian Statistical Institute

B. Stat. II Year: AGRICULTURAL SCIENCE

Mid-Sem Examination

Full Marks: 30 **Time**: 1 hr

A) Fill in the Blanks $10 \times 1 = 10$

1. Soil texture describes the _____ of soil particles.
2. The six master soil horizons are O, A, E, B, C, and _____.
3. The movement of water through soil is influenced by _____ and _____ forces.
4. The three types of soil particles are sand, silt, and _____.
5. _____ irrigation delivers water directly to the plant roots in small amounts.
6. The process by which water enters the soil is called _____.
7. Soil structure refers to the _____ of soil particles into aggregates.
8. Evapotranspiration is the combined process of _____ and _____.
9. _____ is any material applied to the soil surface to reduce evaporation.
10. The cation exchange capacity (CEC) of soil depends on the amount of _____ and organic matter.

B) Multiple Choice Questions $5 \times 1 = 5$

11. Which of the following is NOT a function of soil?
    a) Nutrient cycling
    b) Carbon storage
    c) Air purification
    d) Soil erosion

12. Which factor does NOT directly influence soil formation?
    a) Climate
    b) Parent material
    c) Soil colour
    d) Organisms

13. What is the primary source of irrigation water?
    a) Groundwater
    b) Surface water
    c) Rainfall
    d) Desalination

14. Which of the following irrigation systems is most suitable for water-scarce regions?
    a) Surface irrigation
    b) Drip irrigation
    c) Sprinkler irrigation
    d) Flood irrigation

15. Which soil property influences its ability to hold nutrients?
    a) Soil structure
    b) Bulk density
    c) Surface area
    d) Soil colour

C) Short Answer Questions (answer any five questions) $5 \times 2 = 10$

16. Define soil weathering and its importance in soil formation.
17. What are the primary ecosystem services provided by soils?
18. What is soil porosity, and why is it important?
19. How does soil texture affect water retention?
20. What are the major sources of irrigation water?
21. What are the key advantages of conservation tillage?
22. Define conjunctive use of water in irrigation management.

D) Write Short Notes (answer any one) $1 \times 5 = 5$

26. Compare and contrast soil texture and soil structure.
27. Discuss the different types of irrigation methods and their suitability for various conditions.
28. Explain the role of organic matter in soil fertility and structure.