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By agriguru.in Part 8th

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agriculture engineering Important Question & Answer By agriguru.in, PDF Part: - 9th

1. What is the mechanical manipulation of soil called?

Ans: Tillage

Explanation: Tillage refers to the mechanical operations performed on soil to prepare it for planting, control weeds, and improve soil structure and fertility.

2. What is the term for the good physical condition of soil after tillage?

Ans: Tilth

Explanation: Tilth refers to the physical condition of soil that is favorable for plant growth and root development. It is characterized by good soil structure, adequate porosity, and sufficient moisture and nutrient availability.

3. Who is referred to as the father of tillage?

Ans: Jethro Tull

Explanation: Jethro Tull, an English agricultural pioneer and inventor, is often referred to as the father of tillage for his contributions to agricultural mechanization and the development of innovative tillage implements such as the seed drill.

4. What is the aim of primary tillage operations?

Ans: To break, open, and turn the soil

Explanation: Primary tillage operations, also known as deep tillage, aim to prepare the soil by breaking up compacted layers, incorporating crop residues, and improving soil aeration and drainage. This creates a suitable seedbed for planting and root growth.

5. Name some primary tillage implements.

Ans: Deshi plough, MB plough, Ridge plough, Disk plough, etc.

Explanation: Primary tillage implements are designed to perform deep soil penetration and turning. They include various plows and cultivators that are used to break up soil, bury crop residues, and prepare the ground for secondary tillage operations.

6. What is the tillage operation aimed at creating a good seedbed for proper seeding/planting called?

Ans: Secondary tillage

Explanation: Secondary tillage operations, also known as seedbed preparation, focus on refining the soil surface and creating an optimal environment for seed germination and plant establishment. This involves leveling, smoothing, and firming the soil after primary tillage.

7. Name some secondary tillage implements.

Ans: Cultivator, Harrows, Hoe, Planker, Roller, etc.

Explanation: Secondary tillage implements are lighter and more precision-oriented than primary tillage implements. They are used to prepare the seedbed, control weeds, and incorporate fertilizers and soil amendments before planting.

8. What is the optimum range of available soil moisture for convenient and effective plowing?

Ans: 50-75%

Explanation: Plowing is most effective when soil moisture levels are within the range of 50-75%, as it facilitates soil manipulation, reduces soil

compaction, and ensures proper seedbed preparation without excessive moisture loss or soil sticking to tillage implements.

9. What is the ideal condition of soil for crop growth?

Ans: Seedbed

Explanation: The seedbed refers to the surface layer of soil that is prepared and conditioned to provide an ideal environment for seed germination, root penetration, and plant growth. It should have good tilth, adequate moisture, and proper soil structure.

10. What does conventional tillage involve?

Ans: Minimum tillage, Zero tillage, and Conservation tillage.

Explanation: Conventional tillage encompasses various tillage practices ranging from intensive to minimal disturbance of soil. It includes minimum tillage, zero tillage, and conservation tillage methods tailored to specific cropping systems and soil conditions.

11. What tillage aims to reduce tillage to the minimum necessary for ensuring a good seed-bed, rapid germination, satisfactory stands, and favorable growing conditions?

Ans: Minimum tillage

Explanation: Minimum tillage, also known as reduced tillage, involves minimizing soil disturbance while still achieving optimal seedbed conditions for crop establishment. It aims to conserve soil moisture, reduce erosion, and maintain soil structure by reducing the number and intensity of tillage operations.

12. In which tillage system is the crop planted in unprepared soil?

Ans: Zero tillage

Explanation: Zero tillage, also known as no-till farming, is a tillage system where crops are planted directly into untilled soil without prior plowing or seedbed preparation. It aims to minimize soil disturbance, preserve soil structure, and reduce erosion and nutrient loss.

13. Who termed the word "Zero tillage"?

Ans: Jethro Tull

Explanation: Jethro Tull, an English agricultural pioneer, is often credited with coining the term "Zero tillage" due to his advocacy for minimal soil disturbance and direct seeding practices in the 18th century.

14. What tillage system uses organic residues as protective cover against erosion and evaporational losses of soil moisture?

Ans: Conservation tillage or stubble mulch tillage

Explanation: Conservation tillage, also known as stubble mulch tillage, involves retaining crop residues on the soil surface as a protective cover against erosion and moisture loss. It promotes soil health, reduces tillage erosion, and improves water retention.

15. What tends to encourage higher microbial population, minimum tillage, zero tillage, or conservation tillage?

Ans: Conservation tillage

Explanation: Conservation tillage practices, such as minimum tillage and zero tillage, tend to encourage higher microbial populations in the soil due

to the retention of crop residues and reduced soil disturbance. This fosters a more diverse and active soil microbiome, which benefits soil health and nutrient cycling.

16. What implement is used to break subsoil?

Ans: Chisel plough

Explanation: A chisel plow is a tillage implement equipped with chisel-shaped shanks that penetrate the soil to break up compacted layers and loosen subsoil without inverting soil layers. It is commonly used for deep tillage and soil aeration in preparation for planting.

17. What is a ridge plow used for?

Ans: Earthing-up and forming ridges and furrows.

Explanation: A ridge plow, also known as a furrow plow or hillside plow, is used to create raised beds or ridges and furrows in the soil. It is commonly used in hilly terrain and for earthing-up crops like potatoes or forming drainage channels.

18. What is a star weeder used for?

Ans: Weeding in dry lands and groundnut fields

Explanation: A star weeder is a mechanical weeding implement consisting of rotating star-shaped blades that cut and uproot weeds from the soil surface. It is commonly used in dryland agriculture and groundnut fields to control weed growth without damaging crops.

19. What is a disc plow used for?

Ans: Deep plowing in grassed fields

Explanation: A disc plow is a heavy-duty tillage implement equipped with angled discs or blades that penetrate the soil to break up compacted layers and incorporate crop residues. It is commonly used for deep plowing and soil preparation in grassed fields or fallow land.

20. What is a rotary plow used for?

Ans: Breaking and pulverizing soil into a fine tilth.

Explanation: A rotary plow, also known as a rotary tiller or rotavator, is a powered tillage implement equipped with rotating blades or tines that break up soil and incorporate organic matter to create a fine seedbed. It is commonly used for seedbed preparation and soil cultivation in gardens, orchards, and small-scale farming.

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