

1. What is integrated nutrient management. What is the role of biofertilizers in INM? What are the ways to improve nutrient use efficiency? (5 Marks)
2. What is a plant ideotype? What are the ideotypic features of rice? Discuss on harvest index of crops. (5 Marks)
3. What are the basic elements of green revolution in India? Discuss on the criticisms of green revolution. Write a note on concerns of Indian agriculture. (5 Marks)
4. Define Gender Equity. Explain the strategies for rural women's empowerment. What are SHG's? (5 Marks)
5. Assume that in a strictly self-pollinated crop, a trait is majorly controlled by three genes, each of them having equal effect on the character. Comparing the pedigree and single seed descent methods, how the selection become comparatively easier in the latter. (5 Marks)
6. List out advantages and disadvantages of using mutation breeding, marker assisted back cross, and SDN2 gene editing for a trait for which contrasting phenotypes are controlled by a single gene having differences in few base pairs? (5 Marks)
7. Do you consider synthetic seeds (artificial seeds) are true to type? How a commercial nursery synthesizing and selling synthetic seeds (artificial seeds) of a crop having long juvenile phase ensure genetic purity? List out advantages and disadvantages of each method. (5 Marks)
8. Laterites cover the majority of land area in Kerala. What are the reasons for this? (5 Marks)
9. What is the role of organic matter in soil health and fertility? (5 Marks)
10. What are the methods to improve crop nutrient use efficiency? (5 Marks)

11. What are the major threats to land resources? How this can be managed? (5 Marks)
12. Discuss the biodiversity at global, national and local levels. Are there any threats to the biodiversity? If yes describe in detail. (5 Marks)
13. Are disasters always natural? Justify with an explanation. (5 Marks)
14. What are the major actions taken by the government to control pollution? (5 Marks)
15. Highlight international strategies for disaster reduction. (5 Marks)
16. Is climate changes is real? Discuss the problem and possible solutions of climate change. (5 Marks)
17. Temperature increases with height in certain layers of the atmosphere. Justify this statement with an explanation. (5 Marks)
18. Major monsoon seasons in Kerala and Tamil Nadu and how it affects the Agriculture in each states. (5 Marks)
19. What are the different methods and types of weather forecasting prevail in India? (5 Marks)
20. How does water stress affect plant growth and development, and how can it be mitigated? (5 Marks)
21. The nitrogen use-efficiency of rice crop hardly goes above 40% under low-land situation. How the use efficiency can be enhanced? (5 Marks)
22. Criteria to determine the quality of irrigation water. (5 Marks)
23. Applications of remote sensing in agriculture. (5 Marks)

24. Management of weedy rice in rice cultivation. (5 Marks)
25. Explain agro forestry and agroforestry systems. (5 Marks)
26. Briefly describe the components of IFS and its advantages. (5 Marks)
27. Briefly explain the Biorational pesticides. (5 Marks)
28. Constraints for adopting conservation agriculture. (5 Marks)
29. Agro ecological zones of Kerala. (5 Marks)
30. Prospects of nanotechnology in agriculture. (5 Marks)
31. The initial cost of 35 hp MF Tractor owned by a farmer is Rs.6,00,000/-. In a year the farmer uses the tractor for 1000 hours. The expected life of the tractor is 10 years. The diesel consumption of the tractor is 3.0 litres/hr. Calculate the cost of operation per hour of the tractor. (5 Marks)
- Salvage value of the tractor is 10% of initial cost.
- Bank interest rate is 10%.
- Tax, insurance and housing together is 3% of average cost of tractor.
- Assume all other necessary data.
32. Explain in brief, the in situ engineering/mechanical measures for soil and water conservation suitable for regions having high rainfall and moderate to steep slope. (5 Marks)
33. (a) What is meant by greenhouse effect? (5 Marks)
- (b) What are the challenges of greenhouse cultivation in warm humid tropical regions?

34. (a) What are the different constituents of biogas? (5 Marks)
- (b) Explain in brief, the components and working of floating type biogas plant.
35. Plant growth regulators/bio regulators. Major classes. How they can be used to improve orchard management? (5 Marks)
36. Active packaging, methods and advantages. (5 Marks)
37. Advantages of indoor gardening. How indoor plants helps to mitigate indoor air pollution? List out different methods of indoor gardening. (5 Marks)
38. Explain the functional approach to agricultural marketing, detailing the three main categories of functions involved. (5 Marks)
39. Differentiate between marketable surplus and marketed surplus of agricultural commodities, and discuss about the factors determining the surpluses. (5 Marks)
40. Explain the objectives of agricultural price policy in India and the role of CACP in formulating and recommending agricultural prices. (5 Marks)
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