

2025

**M.Sc. in Agriculture
1st Semester Examination**

AGRONOMY

Paper : AGRON-501

[Modern Concept in Crop Production]

Full Marks : 100

Time : Three Hours

*The figures in the margin indicate full marks.
Candidates are required to give their answers
in their own words as far as practicable.*

Group - A

Answer any *five* questions : 2×5=10

1. What do you understand by Leaf Area Index (LAI)?
2. Distinguish between growth and development.
3. Define crop lodging.
4. What is net assimilation rate (NAR)?
5. Differentiate between dryland farming and rainfed farming.
6. What is crop ideotype?

P.T.O.

(2)

7. Write the difference between conventional tillage and conservation tillage.
8. How does plant population influence crop production?

Group - B

Answer any *four* questions : $5 \times 4 = 20$

9. Define seed priming. Briefly mention the importance of *Rhizobium* in crop production. 1+4
10. What is meant by zero tillage? Write the merits and demerits of zero tillage. 1+4
11. What are the steps to manage crops to avoid lodging? Discuss three morphological and anatomical characters each which prevent lodging. 2+3
12. Define organic farming. Write the principles of organic farming. 2+3
13. Discuss the mechanisms involved in mitigating drought stress in plants.
14. Explain Integrated Farming System (IFS). Suggest an IFS model suitable for rainfed agriculture. 2+3

Group - C

Answer any *five* questions : $10 \times 5 = 50$

15. Define harvest index. Explain Liebig's law, Blackman's law, Mitscherlich's law and Inverse Yield-Nitrogen law. 2+2+2+2+2

16. Draw and explain the sigmoid growth curve. What are plant population and crop geometry? Discuss the importance of plant population and factors affecting it.
3+3+2+2
17. Define agro-ecological region (AER). How many agro-ecological regions are there in India? Name them and classify based on length of growing period. 1+1+4+4
18. Define growth and development of plants. Describe the phases of growth and factors influencing crop growth.
3+3+4
19. What are lodging resistant crop cultivars? Describe types of lodging. Write a comprehensive note on management practices to avoid lodging.
2+3+5
20. Write a note on tillage diversity. How does tillage affect crop production *in-situ*? Differentiate between modern and traditional tillage systems.
4+3+3
21. Write down the ideotypic characters of a cereal and pulse crop mentioning their names. Discuss on management of moisture-excess and moisture-deficit stress of crop plants.
6+4

Internal Assessment : 20 marks
