JHARKHAND Rai University RANCHI

End Semester/Reappear (Semester II) Examination May 2025

Programme: M. Sc. (Ag) Agronomy **Full Marks: 50**
Subject: Cropping Systems and Sustainable Agriculture **Time: 2 Hrs.**
Subject Code: 13A.AGRON.507
Enrollment No: _____

Section I

1. Short Answer type questions. Answer any four. **4 x 5 = 20**

a. Illustrate how intercropping improve yield stability in marginal environments?
b. Describe the impact of using plant growth regulators in dryland crops.
c. Differentiate between rainwater harvesting and efficient irrigation in cropping systems.
d. Compare between monoculture and multiple cropping systems with suitable examples.
e. Enlist two above-ground and two below-ground plant interactions in intercropping systems?
f. Suggest two practical ways to manage crop residues on a farm.

Section II

Long Answer type questions. Answer any two. **2 x 15 = 30**

2. a. Propose an integrated strategy combining organic inputs, efficient fertilizers, and plant growth regulators for sustainable crop production. 10
   b. Explain the role of organic matter in improving soil fertility. 5
3. a. Create a region-specific cropping system model that optimally utilizes physical and soil resources. 10
   b. Describe two methods used for assessing land use in agriculture. 5
4. a. Compare and contrast the production potential of monoculture, multiple cropping, and sequential cropping systems. 10
   b. Describe the basic mechanism of yield advantage in intercropping systems. 5
5. a. Create a sustainable cropping system model incorporating multi-storied cropping, non-monetary inputs, and low-cost technologies suitable for smallholder farmers. 10
   b. Describe two advantages and two limitations of multi-storied cropping systems. 5

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