JHARKHAND Rai University
RANCHI

End Semester/Reappear (Semester V) Examination December, 2024

Programme:B. Sc. (Hons.) Agriculture

Course:Geoinformatics and Nano-technology and Precision farming **Full Marks: 50**

Course Code:13A.316 **Time: 2 Hrs.**

Enrolment no. _____

Q.No.	Questions	CO	Bloom Taxonomy Category	Marks
	Section I			
1	**Short Answer type questions.**			**4 x 5 = 20**
a	Name some tools used in geo-informatics. How is geo-informatics applied in precision agriculture?	CO1	Remember	
	or			
	What is precision agriculture? Name some techniques used in precision agriculture.	CO1	Remember	
b	How can geospatial technologies be used for fertilizer recommendation? Define spatial data in the context of GIS.	CO2	Understand	
	or			
	What are the key components of a GIS for managing spatial data?	CO2	Remember	
c	What are the components of GPS, and how do they function? How is GPS used in precision agriculture?	CO3	Understand	
	or			
	What does STCR stand for in precision agriculture?How does the STCR approach optimize agricultural inputs?	CO3	Understand	
d	Explain the concept of nano-pesticides and nano-fertilizers and their potential advantages in agriculture.	CO3	Understand	
	or			
	What role do nano-sensors play in agriculture, and how do they contribute to precision farming?	CO3	Apply	
	Section II			
Long Answer type questions.				**2 x 15 = 30**
2	a. Elaborate on the concept of nano-fertilizers and how they enhance nutrient delivery to plants. Additionally, how does nanotechnology contribute to innovative plant protection strategies against diseases and pests in agriculture?	CO2	Analyze	
	b. Provide a detailed overview of how nanotechnology is applied to enhance seeds. What advancements does nanotechnology bring to seed technology, and how does this contribute to improved crop yields and resilience?	CO2	Evalaute	
	or			
	a. Explore the structure and properties of nano-particles. How are nano-particles different from larger particles, and what diverse applications do they have in various industries, including agriculture?	CO2	Evalaute	
	b. Explore the applications of nanotechnology in water management for agriculture. How can nanotechnology contribute to efficient water use, purification, and addressing water-related challenges in farming?	CO2	Evalaute	
3	a. Describe how geospatial technologies assist in fertilizer recommendation.Discuss the factors considered in recommending fertilizers based on spatial data.	CO4	Apply	

b. Highlight the advantages of precision fertilizer application in improving crop productivity.	CO4	Analyze	
or			
a. Define crop simulation models and their purpose in agriculture. Discuss how crop simulation models simulate the growth and development of crops. Explore the uses of crop simulation models for optimizing agricultural inputs and improving crop management practices.	CO4	Evalaute	
b. What is crop discrimination in agriculture? How is yield monitoring beneficial for farmers?	CO4	Understand	

Course Outcomes:

At the end of the Course, the Student will be able to-

CO1 Acquire skills to develop more effective use of inputs results in greater crop yield and/or quality, without polluting the environment.

CO2 Develop critical thinking for encourage the farmers to study of spatial and temporal variability of the input parameters using primary data at field level.

CO3 Demonstrate an integrative approach for precision agriculture which can address both economic and environmental issues that surround production agriculture today

CO4 Apply knowledge for more effective use of inputs results in greater crop yield and/or quality, without polluting the environment.