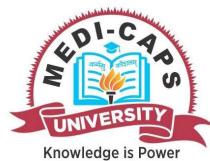


Total No. of Questions: 6

Total No. of Printed Pages: 3

Enrollment No.....



Faculty of Agriculture  
End Sem Examination Dec 2024

AG3CO40

Geoinformatics & Nano-technology & Precision  
Farming

Programme: B.Sc. (Hons.) Branch/Specialisation: Agriculture

**Duration: 3 Hrs.**

**Maximum Marks: 50**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

	Marks	BL	PO	CO	PSO
Q.1 i. What is the primary goal of precision agriculture?	1	2	5	1	
(a) To increase the number of farmers					
(b) To reduce the number of machines used on farms					
(c) To optimize the use of inputs and maximize crop yields					
(d) To completely eliminate manual labor on farms					
ii. What is one major concern related to the adoption of precision agriculture in India?	1	2	6	1	
(a) Lack of interest from farmers					
(b) High cost of technology and limited access to infrastructure					
(c) Scarcity of labor in rural areas					
(d) Decline in crop diversity due to technological advancements					
iii. Which of the following methods is used for soil mapping in agriculture?	1	1	2	2	
(a) Remote sensing and GIS					
(b) Satellite television					
(c) Manual soil sampling without any tools					
(d) Genetic modification of crops					
iv. How is soil mapping useful?	1	3	5	2	

P.T.O.

	[2]		[3]
(a) Identifies soil type and health (b) Measures soil temperature (c) Tracks erosion (d) Counts earthworms			
v. What is one key function of the Global Positioning System (GPS) in farming? (a) Predicting crop yields (b) Guiding tractors for precision farming (c) Measuring soil fertility (d) Identifying pests in crops	1 2 5 3		Q.2 i. What are the key components of precision agriculture? ii. What is the importance of precision farming? iii. Discuss the tools and techniques of geo-informatics and their applications in precision agriculture.
vi. Which is NOT a component of the GPS system? (a) Satellites (b) Ground stations (c) Control room (d) Receivers	1 2 7 3		OR iv. Explain the use of geo-informatics in monitoring and managing soil health in precision agriculture.
vii. What does STCR stand for in precision agriculture? (a) Soil Temperature Control Regulation (b) Soil Test Crop Response (c) Seed Treatment for Crop Resilience (d) Standard Technique for Crop Rotation	1 2 7 4		Q.3 i. What is soil mapping? ii. Describe the process of using geospatial technologies for fertilizer recommendations. iii. Describe the concepts of remote sensing utilized in agricultural practices.
viii. What is nanotechnology? (a) Study of soil microorganisms (b) Science of manipulating materials at the nanoscale (c) A technique for planting crops (d) A system for controlling water in fields	1 2 9 4		OR iv. Write short note on crop discrimination and yield monitoring.
ix. What type of nano-materials can improve seed coatings? (a) Traditional plastics (b) Nanopolymers (c) Natural fibers (d) Regular metals	1 2 2 5		Q.4 i. What is image processing in agriculture? ii. Write the importance of GPS in precision farming. OR iii. What are the main components of GPS, and how do they function in precision agriculture?
x. What are nanoparticles? (a) Large particles visible to the naked eye (b) Particles smaller than 100 nanometers (c) Organic materials used in compost (d) Common fertilizers	1 2 6 5		Q.5 i. What is the main goal of the STCR approach? ii. Define nanotechnology. iii. Discuss the key components of the soil test crop response method used in precision agriculture. OR iv. How can nanotechnology improve pest management and disease control in agriculture?
			Q.6 Attempt any two: i. What are the benefits of using nano-pesticides over conventional pesticide formulations in agriculture? ii. Discuss the challenges and limitations of implementing nanotechnology in modern farming systems. iii. Write down the benefits of nano fertilizers.

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**Marking Scheme**  
**AG3CO40- Geoinformatics & Nano-technology & Precision Farming**

Q.1	i) (c) To optimize the use of inputs and maximize crop yields ii) (b) High cost of technology and limited access to infrastructure iii) (a) Remote sensing and GIS iv) (a) Identifies soil type and health v) (b) Guiding tractors for precision farming vi) (c) Control room vii) (b) Soil Test Crop Response viii) (b) Science of manipulating materials at the nanoscale ix) (b) Nanopolymers x) (b) Particles smaller than 100 nanometers	1 1 1 1 1 1 1 1 1 1	OR	iii. Describe the concepts of remote sensing utilized in agricultural practices. iv. Write short note on crop discrimination yield monitoring.	4 mark 2 mark 2 mark	4 4
Q.2	i. What are the key components of precision agriculture? ii. What is the importance of precision farming? iii. Discuss the tools and techniques of geo-informatics and their applications in precision agriculture.	1 2 5	Q.4	i. What is image processing in agriculture? ii. Write the importance of GPS in precision farming.	2 mark 6 mark	2 6
OR	iv. Explain the use of geo-informatics in monitoring and managing soil health in precision agriculture.	5	OR	iii. What are the main components of GPS how do they function in precision agriculture	3 mark 3 mark	6
Q.3	i. What is soil mapping? ii. Describe the process of using geospatial technologies for fertilizer recommendations.	1 3	Q.5	i. What is the main goal of the STCR approach? ii. Define nanotechnology. iii. Discuss the key components of the soil test crop response method used in precision agriculture.	2 mark 2 mark 4 mark	2 2 4
			OR	iv. How can nanotechnology improve pest management and disease control in agriculture?	4 mark	4
			Q.6	i. Attempt any two: i. What are the benefits of using nano-pesticides over conventional pesticide formulations in agriculture? ii. Discuss the challenges limitations of implementing nanotechnology in modern farming systems. iii. Write down the benefits of nano fertilizers.	4 marks 2 marks 2 marks 4 marks	4 4

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