A **Reg. No. :** | | | | | | | | | | | | |

Question Paper Code: U9A74

B.E. / B.Tech. DEGREE EXAMINATION, APRIL 2024

Open Elective

21UAG974 - AGRICULTURE AUTOMATION

(Common to ALL branches)

(Regulations 2021)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. Which of the following type of irrigation system is practiced on small scale in India? CO1 U

   (a) Lift Irrigation (b) Flood Irrigation

   (c) Natural sub-irrigation (d) Artificial sub- irrigation

2. Canal irrigation is generally preferred in _____ CO1 U

   (a) Non-alluvial canal (b) Non-perennial canal (c) Alluvial canal (d) Feeder canal

3. Modern GIS technology uses _____ type of information. CO1 U

   (a) Analog (b) Digital (c) Both a & b (d)none of the above

4. A traditional method traces geographical form using _____. CO1 U

   (a)Directly (b) Indirectly (c) Digitizing tablet d) none of the above

5. Which component of robotics is responsible for moving robot parts? CO1 U

   (a) Sensors (b) Actuators (c) Control Systems (d) Artificial Intelligence

6. In precision agriculture, what role do robotics play in resource application? CO3U

   (a) Precise seeding (b) Optimizing irrigation

   (c) Assessing plant health (d) Detecting pests

7. Which component of an IoT-based automated irrigation system processes data from sensors and controls the irrigation process? CO2U

   (a) Actuator (b) Microcontroller orSBC

   (c) Soil MoistureSensor (d) Charge Controller

8. What is the primary function of soil moisture sensors in agriculture? CO2U

(a)Measure ambient temperature (b) Monitor humidity levels

(c) Detect signs of crop disease (d) Measure soil moisture content

9. What is the main goal of precision agriculture? CO1 U

(a) Increase efficiency (b) Optimize resource utilization

(c) Maximize yields (d) Enhance sustainability

10. How do smart irrigation systems conserve water? CO2 U

(a) By watering randomly (b) By watering only when necessary

(c) By flooding fields (d) By ignoring soil moisture

PART – B (5 x 2= 10Marks)

11. Discuss about soil moisture sensor ? CO2 U

12. Explain about Remote Sensors? CO 1 U

13. Name two examples of sensors commonly used in robotics. CO 1 U

14. Define IoT-based automated irrigation system. CO 1 U

15. What is the key role of predictive analytics in agriculture? CO 1 U

PART – C (5 x 16= 80Marks)

16. (a) Write about Agriculture Automation and its needs and Benefits of using automation system in agriculture sector? CO1- U (16)

Or

(b) Explain the Drip irrigation and its opreation and installation of the system with neat sketch also write Merits and Demerits of the Drip irrigation ? CO1- U (16)

17. (a) Discuss in detail about working principles of Precision Farming with neat sketch? CO1- U (16)

Or

(b) Explain about Geographic Information System (GIS) and its methods with neat sketch? CO1- U (16)

18. (a) Why are programming languages and algorithms important in robotics, and what are some common examples? CO2- U (16)

Or

(b) How does robotics utilize AI and machine learning to enhance capabilities? CO2- U (16)

19.	(a)	What role do microcontrollers or SBCs play in IoT-based irrigation systems?	CO2- U	(16)
		Or		
	(b)	Evaluate the advantages and challenges of using solar energy in agriculture.	CO2- U	(16)
20.	(a)	How do predictive analytics empower farmers in making informed decisions and optimizing agricultural practices?	CO3- U	(16)
		Or		
	(b)	Evaluate the advantages of implementing automation in greenhouses and its impact on crop quality, yield, and resource efficiency.	CO3- U	(16)