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. Sensors convert signals from analog to _____ domain.   CO1-U

    (a) Digital   (b) Electrical   c) Mechanical   (d) Both (a) and (b)

3. GIS tools allow the user to perform which of the following task?   CO1-U

    (a) Create searches   (b) Store data   (c) Edit data   (d) All the above

4. Which of the following is an example of a passive remote sensing technology?   CO1-U

    (a) RADAR   (b) LiDAR   (c) SONAR   (d) Landsat

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

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

6. Which communication protocol is commonly used for remote monitoring and control in IoT-based automated irrigation systems?   CO1-U

    (a) I2C   (b) Bluetooth   (c) Wi-Fi   (d) SPI

7. Which programming language is commonly used for controlling robot behavior?   CO1-U

    (a) Java   (b) Python   (c) HTML   (d) PHP

8. Actuators in an automated irrigation system are responsible for   CO1-U

    (a) Processing sensor data   (b) Controlling water flow

    (c) Generating electricity   (d) Transmitting data to the cloud

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 IoT systems contribute to livestock management?   CO1-U

    (a) Measure soil pH   (b) Monitor livestock

    (c) Control greenhouse ventilation   (d) Analyze crop yields

PART – B (5 x 2= 10 Marks)

11. What are the types of traditional irrigation methods ?   CO1-U

12. Explain about Geographic Information System (GIS)?   CO1-U

13. Give detail about one ethical consideration associated with robotics in agriculture.   CO1-U

14. Explain the role of a charge controller in a solar-based automatic system.   CO1-U

15. What is the key role of predictive analytics in agriculture?   CO1-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) What is Precision Farming and explain its working principles with neat sketch?   CO2-U   (16)

Or

    (b) What is crop production modeling and explain their benefits and the future of Agronomics Using Crop modeling?   CO2-U   (16)

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18. (a) Why are programming languages and algorithms important in robotics, and what are some common examples?   CO1-U   (16)

Or

(b) What ethical and safety considerations are involved in agricultural robotics?   CO1-U   (16)

19. (a) What role do microcontrollers or SBCs play in IoT-based irrigation systems?   CO1-U   (16)

Or

(b) Evaluate the advantages and challenges of using solar energy in agriculture.   CO1-U   (16)

20. (a) Explain the functioning of smart irrigation systems and how they optimize water usage in agriculture.   CO2-U   (16)

Or

(b) Discuss the significance of soil moisture sensors in irrigation management and their impact on crop productivity.   CO2-U   (16)

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