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

Question Paper Code: 59052

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2018

Interdisciplinary

Mechanical Engineering

15UGM952 - AUTOMATION IN AGRICULTURE

(Common to Information Technology)

(Regulation 2015)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (5 x 1 = 5 Marks)

1. In India 75 percent of farmer belongs to _____. CO1- R

   (a) Marginal (b) Small (c) Medium (d) Large

2. The thermal efficiency of diesel engine varies between _____ percent. CO1- R

   (a) 25 - 32 (b) 32 - 38 (c) 35 - 40 (d) 40-45

3. The normal depth of operation (ploughing) in subsoiler is: CO2- R

   (a) 15-35 cm (b) 35-65 cm (c) 60-90 cm (d) 45-75 cm

4. The equipment that has no driven/moving component is: CO2- R

   (a) Tool (b) Machine (c) Implements (d) Equipment

5. What are the two methods of irrigation which conserve water? CO3- R

   (a) Drip (b) Sprinkler (c) Surface (d) Sub Surface

6. How can an irrigation layout be automated? CO3- R

   (a) Sections of channel (b) At individual bay outlets.

   (c) Both (a) and (b) (d) None of the above

7. For any solar based pumping system, the capacity to drive water is a function of three variable CO4- R

   (a) Power (b) Flow and pressure (c) A only (d) Both a and b

8. Moisture and Temperature Sensor deployed in soil are connected to Microcontroller which gives the moisture and temperature output based on — CO4- R

(a) Soil condition (b) Temperature (c) Both (a) and (b) (d) None of the above

9. Demeter is a type of robot used for — CO5- R

(a) Remove the weed (b) Cutting the crops

(c) Cut the grass in lawns (d) Tending trees

10. Which robot consists of combined networked sensors, a webcam and a wireless network link is — CO5- R

(a) Weed controller (b) Robotic Gantry

(c) Treebot (d) Fruit picking robot

PART – B (5 x 3= 15 Marks)

11. Explain the Concept of farm mechanization — CO1- U

12. What are the factors affecting penetration of disc harrow — CO2- R

13. Define SCADA Method of Automatic Irrigation — CO3- U

14. Differentiate conventional techniques with ANN techniques. — CO4- Ana

15. Explain about the Autonomous Navigation Control. — CO5- U

PART – C (5 x 16= 80Marks)

16. (a) Explain the scope, Benefits and limitation of farm mechanization. CO1- U (16)

Or

(b) Classify and explain the mechanization in farming operations. CO1- U (16)

17. (a) What are the functions of a mouldboard plough? Describe its different parts with the help of neat sketch. CO2- U (16)

Or

(b) What are the different types of disc harrow? Describe the working of off-set disc harrow. CO2- U (16)

18. (a) Explain the SCADA method of automatic irrigation system. CO3- U (16)

Or

(b) Explain the hybrid method of timer/sensor used in automatic irrigation system. CO3- U (16)

19.	(a)	Differentiate automation by sensing soil moisture with sensing temperature.	CO4- Ana	(16)
		Or		
	(b)	Differentiate solar based automated irrigation system with ANN based controller	CO4- Ana	(16)
20.	(a)	Explain about the Autonomous Navigation Control in detail.	CO5- U	(16)
		Or		
	(b)	Explain about the Concept of Multiple Robots and Multi Robot Structure.	CO5- U	(16)