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Question Paper Code: 59I52

B.E. / B.Tech. DEGREE EXAMINATION, APRIL 2019

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. The average force that a bullock can exert _____ of their body weight CO1- R
(a) 10% (b) 12% (c) 18% (d) 32%
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 main objective of tillage is: CO2- R
(a) Loosing soil (b) Breaking compact earth surface
(c) Improve aeration of soil (d) All are correct
5. What are the two methods of irrigation which conserve water? CO3- R
(a) Drip (b) Sprinkler (c) Surface (d) Sub Surface
6. The benefits of micro irrigation are CO3- R
(a) Most efficient method of irrigation (b) Increases crop productivity with less water usage.
(c) Saves electricity (d) Enhances fertilizer use efficiency

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. The available traditional methods of irrigation CO4- R
- (a) Drip irrigation (b) Ditch irrigation (c) Sprinkler system (d) All 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 one of the following is used in Vision intelligence for precision agriculture? CO5- R
- (a) Yield estimation (b) Pest infestation
- (c) Fertilizer application (d) Chemical application

PART – B (5 x 3= 15 Marks)

11. Illustrate any three Scope of farm mechanization CO1- U
12. What are different methods of sowing crops? Explain “Broadcasting” and Dibbling” CO2- R
13. What are the advantages and disadvantages of automatic irrigation? CO3- U
14. Define the different types of automatic sensor used in irrigation CO4- Ana
15. Explain about the Autonomous Navigation Control. CO5- U

PART – C (5 x 16= 80Marks)

16. (a) Explain the different sources of farm power CO1- U (16)
- Or
- (b) Define farm mechanization? Explain the concept and benefits of farm mechanization CO1- U (16)
17. (a) What are the important adjustments of mouldboard plough? What are the effects of vertical suction and horizontal suction in a mouldboard plough? 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) Analyze the Tank monitoring system using machine learning techniques like Artificial Neural Network (ANN) and Fuzzy logic. CO3- U (16)
- Or
- (b) Explain the hybrid method of timer/sensor used in automatic irrigation system. CO3- U (16)
19. (a) Explain in detail about the IOT based agricultural Engineering CO4- Ana (16)
- Or
- (b) Differentiate solar based automated irrigation system with ANN based controller CO4- Ana (16)
20. (a) Explain the various Agricultural robot vehicles that are used for agriculture recently. CO5- U (16)
- Or
- (b) Explain about the Concept of Multiple Robots and Multi Robot Structure. CO5- U (16)

