

**A**

Reg. No. :

--	--	--	--	--	--	--	--	--	--

**Question Paper Code: 59513**

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

Elective

Electronics and Instrumentation Engineering

15UEI913 – INSTRUMENTATION FOR AGRICULTURE AND FOOD PROCESSING

(Regulation 2015)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. Name the instrument used to measure moisture in soil is CO1- R  
(a) Hygrometer      (b) Psychrometer      (c) Bourdon guage      (d) Tensiometer
2. Identify Intelligent sensor in the following CO1- R  
(a) Thermocouple      (b) Smart thermostat      (c) PIR sensor      (d) LDR
3. The software used to drive microprocessor-based systems is called CO2- R  
(a) Assembly language      (b) Firmware  
(c) Machine language code      (d) BASIC interpreter instructions
4. Useful soil moisture for plant growth is CO2- R  
(a) Capillary water      (b) Gravity water      (c) Chemical water      (d) All the above
5. FSSAI stands for CO3- R  
(a) Food Safety and Regularity Authority of India  
(b) Food Systems and Standards Authority of India  
(c) Food Safety and Standards Authority of India  
(d) Food Safety and systems Authority of India

6. Which one is artificial food colours CO3- R  
 (a) Blue (b) Quinoline yellow (c) Citrus Red (d) Green
7. Spectroscopy deals with study of interaction between CO4- R  
 (a) Matter and radiation (b) Frequency and light  
 (c) Voltage and current (d) Energy and electron
8. Sounds of frequency higher than 20,000 Hz which are inaudible to normal human ear are called CO4- R  
 (a) Noise (b) Frequency (c) Ultrasonics (d) Amplitude
9. Which gas is the greatest overall contributor to the greenhouse effect? CO5- R  
 (a) Water vapor (b) Carbon dioxide (c) Nitrous oxide (d) Methane
10. Light is necessary in the process of Photosynthesis to CO5- R  
 (a) Split carbon di-oxide (b) Produce ATP  
 (c) Produce methane (d) Release hydrogen

PART – B (5 x 2= 10Marks)

11. Identify the difference between sensors and transducers. CO1- R
12. When auto drip irrigation system is needed? CO2- U
13. Label the detectors used in food colour analysis. CO3- R
14. List out the Rheological properties of Food. CO4- R
15. Define evapo-transpiration. CO5- U

PART – C (5 x 16= 80Marks)

16. (a) Examine how direct and indirect methods of measuring grain moisture level. CO1- App (16)
- Or
- (b) Illustrate the working of the following CO1- U (8)  
 (i) Humidity transducer  
 (ii) Carbon -di -oxide gas transducer CO1- U (8)

17. (a) Demonstrate on the Soil nutrient estimation system using microprocessors. CO2- App (16)
- Or
- (b) With neat diagrams, explain the role of SCADA in Agriculture. CO2- Ana (16)
18. (a) Classify the various sensory testing and evaluation methods of food products and explain in detail. CO3- Ana (16)
- Or
- (b) (i) Analyze the importance of Colour measurement in food industry. CO3- U (8)
- (ii) Explain working principle of any one Spectrophotometers. CO3- U (8)
19. (a) Discuss the infrared Spectroscopic technique for food quality analysis with neat diagrams. CO4- U (16)
- Or
- (b) (i) Explain how Ultrasonics been used in food processing. CO4- U (8)
- (ii) Point out the various steps involved in Food Rheology. CO4- U (8)
20. (a) Summarize the various processes involved in Greenhouse instrumentation. CO5- U (16)
- Or
- (b) Describe the various methods of Infrared and Bio sensors used in agriculture. CO5- U (16)

