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Reg. No.:					

Question Paper Code: 59513

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

Elective

Electronics and Instrumentation Engineering

15UEI913 – INSTRUMENTATION FOR AGRICULTURE AND FOOD PROCESSING

(Regulation 2015)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

Examine the following can be measured using change in resistivity?
 (a) Moisture content
 (b) Visible radiation
 (c) Temperature
 (d) All of the mentioned
 Identify Intelligent sensor in the following

PART A - $(10 \times 1 = 10 \text{ Marks})$

(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. Tell 8085 microprocessor has how many pins CO2- R

(a) 30 (b) 39 (c) 40 (d) 41

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

Identify, Rods are sensitive to					CO3- R		
(a) t	oright light	(b) dim light	(c) colored Vision	(d) blurrine	ess		
Spec	ctroscopy deals w	ith study of interaction	on between	CO4-]			
(a) Matter and radiation (b) Frequency and light			Ī.				
(c) Voltage and current			(d) Energy and electro	(d) Energy and electron			
		•	Hz which are inaudible to	,	CO4- R		
(a) I	Noise	(b) Frequency	(c) Ultrasonics	(d) Amplitu	ıde		
Tell	the most abundar	ntly found greenhouse	e gas?		CO5- R		
(a) (Carbon dioxide	(b) Water vapor	(c) Methane	(d) Nitrous	oxide		
Ligh	nt is necessary in t	he process of Photos	ynthesis to		CO5- R		
(a) Split carbon di-oxide			(b) Produce ATP				
(c) I	Produce methane		(d) Release hydrogen				
		PART - B (5	x 2= 10Marks)				
Defi	ine Hygrometer?				CO1- R		
2. List the classification of transducer.					CO2- U		
Defi	ine modern sensor	y evaluation.			CO3- R		
List	the application of	Near Infra-red meas	urement technology.		CO4- R		
5. List the major factor characterizing the greenhouse climates.				CO5- U			
		PART – C	(5 x 16= 80Marks)				
(a)	Illustrate any two detail.	o grain moisture mea	surement techniques in	CO1- App	(16)		
(1.)	TII	Or		CO1 II	(0)		
(b)		COI- U	(8)				
	•			CO1- U	(8)		
(a)	Describe the g		of microprocessors-based	CO2- App	(16)		
(b)	With neat diagra		of SCADA in Agriculture	CO2. Ana	(16)		
	(a) the Spece (a) It is specificated as the specific term of the specifi	(a) bright light Spectroscopy deals way (a) Matter and radiation (c) Voltage and current Sounds of frequency normal human ear are (a) Noise Tell the most abundant (a) Carbon dioxide Light is necessary in the control of the	(a) bright light (b) dim light Spectroscopy deals with study of interaction (a) Matter and radiation (c) Voltage and current Sounds of frequency higher than 20,000 normal human ear are called (a) Noise (b) Frequency Tell the most abundantly found greenhouse (a) Carbon dioxide (b) Water vapor Light is necessary in the process of Photos (a) Split carbon di-oxide (c) Produce methane PART – B (5) Define Hygrometer? List the classification of transducer. Define modern sensory evaluation. List the application of Near Infra-red meass List the major factor characterizing the green than the process of the following (i) Humidity transducer (ii) Carbon -di -oxide gas transducer (a) Describe the generalized structure system Or	(a) bright light (b) dim light (c) colored Vision Spectroscopy deals with study of interaction between (a) Matter and radiation (b) Frequency and light (c) Voltage and current (d) Energy and electror. Sounds of frequency higher than 20,000 Hz which are inaudible to normal human ear are called (a) Noise (b) Frequency (c) Ultrasonics Tell the most abundantly found greenhouse gas? (a) Carbon dioxide (b) Water vapor (c) Methane Light is necessary in the process of Photosynthesis to (a) Split carbon di-oxide (b) Produce ATP (c) Produce methane (d) Release hydrogen PART – B (5 x 2= 10Marks) Define Hygrometer? List the classification of transducer. Define modern sensory evaluation. List the application of Near Infra-red measurement technology. List the major factor characterizing the greenhouse climates. PART – C (5 x 16= 80Marks) (a) Illustrate any two grain moisture measurement techniques in detail. Or (b) Illustrate the working of the following (i) Humidity transducer (ii) Carbon -di -oxide gas transducer (a) Describe the generalized structure of microprocessors-based system Or	(a) bright light (b) dim light (c) colored Vision (d) blurrine Spectroscopy deals with study of interaction between (a) Matter and radiation (b) Frequency and light (c) Voltage and current (d) Energy and electron Sounds of frequency higher than 20,000 Hz which are inaudible to normal human ear are called (a) Noise (b) Frequency (c) Ultrasonics (d) Amplitude Tell the most abundantly found greenhouse gas? (a) Carbon dioxide (b) Water vapor (c) Methane (d) Nitrous Light is necessary in the process of Photosynthesis to (a) Split carbon di-oxide (b) Produce ATP (c) Produce methane (d) Release hydrogen PART – B (5 x 2= 10Marks) Define Hygrometer? List the classification of transducer. Define modern sensory evaluation. List the application of Near Infra-red measurement technology. List the major factor characterizing the greenhouse climates. PART – C (5 x 16= 80Marks) (a) Illustrate any two grain moisture measurement techniques in detail. Or (b) Illustrate the working of the following (i) Humidity transducer (ii) Carbon -di -oxide gas transducer of microprocessors-based CO2- App system		

18.	(a)	Explain the Quantitative Descriptive analysis test in sensory evaluation method.	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)	Describe the working principle of On-line infra-red gauge instrument.	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)	Describe ventilation and cooling system of green house environment.	CO5- U	(16)			
Or							
	(b)	Describe the various methods of Infrared and Bio sensors used in agriculture.	CO5- U	(16)			