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GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–VII (NEW) EXAMINATION – WINTER 2018

Subject Code: 2170808   **Date: 26/11/2018**

Subject Name: Sensor Networks & Instrumentation

Time: 10:30 AM TO 01:00 PM   **Total Marks: 70**

Instructions:
1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Explain sensors parameter.	**03**
	(b)	Explain humidity sensors in details.	**04**
	(c)	Explain Second Order Band Pass Filter in detail	**07**
Q.2	**(a)**	Explain loading effect on sensors output.	**03**
	(b)	Explain KRC filters equations.	**04**
	(c)	Explain with neat sketch CO_2 Sensing techniques with necessary equations and graphs.	**07**
		OR	
	(c)	Explain Transducer Bridge Amplifier using Op-Amp with Application	**07**
Q.3	**(a)**	Explain characteristics of an Ideal OP-AMP.	**03**
	(b)	Explain advantages of smart sensors.	**04**
	(c)	How to select a sensor? Explain selection of sensor in detail	**07**
		OR	
Q.3	**(a)**	What is Negative Feedback?	**03**
	(b)	Explain Multiple Feedback filters.	**04**
	(c)	Explain various factors influencing WSN design	**07**
Q.4	**(a)**	What is wireless sensor network?.	**03**
	(b)	Explain Zigbee Network	**04**
	(c)	What is Sensor? Give classification of sensors with respect to various parameters.	**07**
		OR	
Q.4	**(a)**	Explain First Order RC filters	**03**
	(b)	Explain capacitive sensor.	**04**
	(c)	Explain general architecture of smart sensor	**07**
Q.5	**(a)**	Explain feedback system in OP-AMP circuit.	**03**
	(b)	What is Negative Feedback? What are its advantages?	**04**
	(c)	Explain first order low pass filter and derive all equations with neat figure.	**07**
		OR	
Q.5	**(a)**	Explain KRC filters	**03**
	(b)	Explain first order Low Pass active filter	**04**
	(c)	Explain First Order RC filters and derive its equations.	**07**

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