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Internal Assessment Test - I										
Sub:	SENSORS & TRANSDUCERS							Code:	15EE562	
Date:	06/03/2018	Duration:	90 mins	Max Marks:	50	Sem :	6	Branch:	EEE	
Answer FIVE FULL Questions. Mention units wherever necessary.										

OBE

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|---|------|-----|----|
| 1 (a) Briefly describe the classification of Transducers. What are the advantages & disadvantages of Transducers? | [10] | CO1 | L1 |
| 2 (a) Explain briefly the LVDT with a neat diagram. | [05] | CO2 | L2 |
| (b) Describe the working of different types of Resistive transducers. | [05] | CO2 | L1 |
| 3 (a) With relevant diagrams, explain the working of capacitive Transducers for | [05] | CO2 | L5 |
| i) Change in area of the plates. | | | |
| ii) Change in distance the plates | | | |

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|---|------|-----|-----|
| 1 (a) Briefly describe the classification of Transducers. What are the advantages & disadvantages of Transducers? | [10] | CO1 | L1 |
| 2 (a) Explain briefly the LVDT with a neat diagram. | [05] | CO1 | CO2 |
| (b) Write the brief explanation of Resistive transducers. | [05] | CO1 | CO2 |
| 3 (a) With relevant diagrams, explain the working of capacitive Transducers for | [05] | CO2 | L5 |
| iii) Change in area of the plates. | | | |
| iv) Change in distance the plates. | | | |

- CO2 L3
- 3 (b) A platinum resistive thermometer (RTD) has a resistance of 100Ω at 25°C , the resistance temperature coefficient of platinum is $0.00392\Omega/\Omega^{\circ}\text{C}$. [10]
- i) Find its resistance at 50°C .
 - ii) If the thermometer has a resistance of 200Ω , calculate the value of temperature.
- CO2 L4
4. Explain the following with neat diagram [10]
- i) Photo emissive
 - ii) Photoconductive cell
 - iii) Phototransistor
 - iv)
- CO2 L4
5. Explain the hall effect transducer? What are the advantages and disadvantages of it? [10]
- CO2 L3
6. A variable reluctance type proximity inductive reluctance consists of coil which has an inductance of 2mH when the target made of ferromagnetic material is 1mm away. [10]
- i) Calculate the value of inductance when a displacement of 0.002mm is applied to the target in a direction moving it towards the core.
 - ii) Shows that the change in inductance is linearly α to the displacement. neglect the reluctance of the iron plate.
- 3(b). A platinum resistive thermometer (RTD) has a resistance of 100Ω at 25°C , the resistance temperature coefficient of platinum is $0.00392\Omega/\Omega^{\circ}\text{C}$. [10] CO2 L3
- v) Find its resistance at 50°C .
 - vi) If the thermometer has a resistance of 200Ω , calculate the value of temperature.
4. Explain the following with neat diagram [10] CO2 L4
- ii) Photo emissive
 - iii) Photoconductive cell
 - iv) Phototransistor
5. What is hall effect transducer? What are the advantages and disadvantages of it? [10] CO2 L4
6. A variable reluctance type proximity inductive reluctance consists of coil which has an inductance of 2mH when the target made of ferromagnetic material is 1mm away. [10] CO2 L3
- i) Calculate the value of inductance when a displacement of 0.002mm is applied to the target in a direction moving it towards the core.
 - ii) Shows that the change in inductance is linearly α to the displacement. Neglect the reluctance of the iron plate.

Scheme of Evaluation
Internal Assessment Test 1 – Sept.2018

Sub:	Sensors & Transducers						Code:	15EE662	
Date:	07/03/2019	Duration:	90mins	Max Marks:	50	Sem:	III	Branch:	EEE

Note: Answer Any Five Questions

Question #		Description	Marks Distribution		Max Marks
1	a)	Briefly describe the classification of Transducers. What are the advantages & disadvantages of Transducers? <ul style="list-style-type: none"> • Classification of transducers • Advantages • Disadvantages 	6M 2 M 2 M	10 M	10 M
	a)	Explain briefly the LVDT with a neat diagram. <ul style="list-style-type: none"> • Construction • Working • Circuit diagram 	2 M 2 M 1 M	5 M	10 M
2	b)	Describe the working of different types of Resistive transducers. <ul style="list-style-type: none"> • Linear Potentiometer <ul style="list-style-type: none"> ➤ Working ➤ Circuit diagram • Rotational Potentiometer <ul style="list-style-type: none"> ➤ Working ➤ Circuit diagram 	2 M 1 M 1 M 1 M	5 M	
	3	(a)	With relevant diagrams, explain the working of capacitive Transducers for <ul style="list-style-type: none"> v) Change in area of the plates. <ul style="list-style-type: none"> ➤ Working ➤ Circuit diagram vi) Change in distance the plates <ul style="list-style-type: none"> ➤ Working ➤ Circuit diagram 	1 M 1 M 2 M 1 M	5 M
b)		A platinum resistive thermometer (RTD) has a resistance of 100Ω at 25°C , the resistance temperature coefficient of platinum is $0.00392\Omega/\Omega^{\circ}\text{C}$. <ul style="list-style-type: none"> iii) Find its resistance at 50°C. iv) If the thermometer has a resistance of 200Ω, calculate the value of temperature. 	3 M 2 M	5 M	

4	(a)	<p>Explain the following with neat diagram</p> <ul style="list-style-type: none"> • Photo emissive <ul style="list-style-type: none"> ➤ Working ➤ Circuit diagram • Photoconductive cell <ul style="list-style-type: none"> ➤ Working ➤ Circuit diagram • Phototransistor <ul style="list-style-type: none"> ➤ Working ➤ Circuit diagram 	2 M 1 M 2 M 1 M 2 M 2 M	10 M	10 M
5	a)	<p>Explain the hall effect transducer? What are the advantages and disadvantages of it?</p> <ul style="list-style-type: none"> • Hall Effect • Working • Advantages • disadvantages 	3 M 3 M 2 M 2 M	10 M	10 M
6	a)	<p>A variable reluctance type proximity inductive reluctance consists of coil which has an inductance of 2mH when the target made of ferromagnetic material is 1mm away.</p> <ul style="list-style-type: none"> • Calculate the value of inductance when a displacement of 0.002mm is applied to the target in a direction moving it towards the core. • Shows that the change in inductance is linearly α to the displacement. neglect the reluctance of the iron plate. 	6 M 4 M	10 M	10 M