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B.E. SEMESTER VI EXAMINATION (April/2015)

SUBJECT CODE: EE-605

SUBJECT NAME: INDUSTRIAL INSTRUMENTATION

DATE: 08/05/2015

TIME: 10:30 to 1:30

TOTAL MARKS: 70

Instructions:

1. Answer each section in separate answer sheets
2. Use of scientific Calculator is permitted
3. All questions are compulsory
4. Indicate clearly the options you attempted along with the respective question number.
5. Use the last page of your supplementary for rough work.

Section – I

Q-1 Answer the following questions

- A What is Transducer? Explain advantages of electrical transducer. 5
- B Explain the term Gauge Factor with respect to resistance strain gauge and obtain its expression in terms of poisson's ratio. 5
- C Explain difference between Active transducer-Passive transducer. 5

OR

- C Explain construction and working of Semiconductor strain gauge. Also state its advantages. 5

Q-2 Answer the following questions

- A Why temperature compensation is required for strain gauge? Explain any one method in detailed for temperature compensation. 5
- B Explain any one configuration of strain gauge in bridge circuit. 5

OR

- A Write short note on Synchros. 5
- B Write short note on Ultrasonic flow meter. 5

Q-3 Answer the following questions

- A Explain the construction and working of LVDT used for measurement of Linear displacement. 5
- B Explain the construction and working of Piezoelectric transducer. Also derive output equation 5

OR

- A Explain how capacitive transducer used for Angular displacement. 5
- B Explain working principle of Hall effect transducer. Also state its application. 5

Section – II

Q-4 Answer the following questions

- | | | |
|---|---|---|
| A | Write short note on Hot wire anemometer. | 5 |
| B | Define :
(1) Reproducibility (2) Drift (3) Resolution (4) Accuracy (5) Dead Zone | 5 |
| C | With a neat sketch explain the construction and working of Rota meter. | 5 |

OR

- | | | |
|---|--|---|
| C | Write short note on Thermistor for temperature measurement | 5 |
|---|--|---|

Q-5 Answer the following questions

- | | | |
|---|--|---|
| A | State different methods used for Torque measurement. Explain any one in detail | 5 |
| B | State different methods used for Flow measurement. Explain how Venturi tube used for flow measurement. | 5 |

OR

- | | | |
|---|--|---|
| A | State different type of Load cell used for force measurement. Explain any one in detail. | 5 |
| B | Write Short Notes on Diaphragm. | 5 |

Q-6 Answer the following questions

- | | | |
|---|---|---|
| A | Explain working principle of Thermocouple for temperature measurement. | 5 |
| B | State different types of transducers used for pressure measurement. How LVDT used for pressure measurement. | 5 |

OR

- | | | |
|---|---|---|
| A | Give Comparison between RTD and Thermocouple. | 5 |
| B | Write short note on Thermopile | 5 |

*****ALL THE BEST*****