

B.E. Instrumentation Engineering (MODEL CURRICULUM) Sem-III
IN302M : Sensors & Transducers

P. Pages : 1

Time : Three Hours



GUG/W/22/14010

Max. Marks : 80

- Notes :
1. All questions carry marks as indicated.
 2. Due credit will be given to neatness and adequate dimensions.
 3. Assume suitable data wherever necessary.
 4. Illustrate your answers wherever necessary with the help of neat sketches.

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|------------|----|---|----------|
| 1. | a) | Classify transducers in detail and give one example of each. | 8 |
| | b) | Define measurement. Discuss objective of engineering measurement. | 8 |
| OR | | | |
| 2. | a) | Define the terms span & range give one example of each. Also explain calibrations need in detailed. | 8 |
| | b) | Discuss static & dynamic characteristics in detailed. | 8 |
| 3. | a) | State four methods used for force measurement. Elaborate any one with neat sketch. | 8 |
| | b) | Describe in detailed alternator power measurement. | 8 |
| OR | | | |
| 4. | a) | Write in brief magneto strictive torsion transducer. | 8 |
| | b) | State the principle of strain gauge. Draw & explain different types of strain gauges. | 8 |
| 5. | a) | How the displacement is measured with resistive displacement transducer? Explain with suitable diagram. | 8 |
| | b) | Draw & discuss working of differential capacitive cell. | 8 |
| OR | | | |
| 6. | a) | Draw & explain ultrasonic transducer for displacement measurement. | 8 |
| | b) | How thickness can be measured with the help of capacitive transducer. | 8 |
| 7. | a) | Discuss the construction & working of photo pickups & magnetic pickups. | 8 |
| | b) | Discuss in detail piezoelectric acceleration transducer. | 8 |
| OR | | | |
| 8. | a) | Explain in brief seismic accelerometer using LVDT. | 8 |
| | b) | Discuss jerk meters with its block diagram. | 8 |
| 9. | a) | Illustrate the working of capacitive & inductive proximity sensors. | 8 |
| | b) | Describe different sound transducer's. Give their applications. | 8 |
| OR | | | |
| 10. | a) | Explain the construction & working of any one type of viscosity sensor with neat sketch. | 8 |
| | b) | Explain the construction & working of any one type of density measurement setup. | 8 |
