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**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR**  
(AUTONOMOUS)**M.Tech I Year I Semester (R16) Regular Examinations January 2017****ADVANCED INSTRUMENTATION SYSTEMS**

(Control Systems)

(For Students admitted in 2016 only)

Time: **3 hours**Max. Marks: **60**(Answer all Five Units **5 X 12 =60** Marks)**UNIT-I**

- Q.1** a. Explain the principle and working of Hot-wire resistance transducer 6M  
 b. Explain how a capacitive transducer can be used to monitor the thickness of an insulating sheet in motion, without making contact. 6M

**OR**

- Q.2** a. With a neat diagram briefly explain the working of resistance thermometers 5M  
 b. Explain how a hot wire resistor can be used for measurement of fluid level with neat sketches. 7M

**UNIT-II**

- Q.3** a. Describe the phenomenon of piezoelectric torque transducer 6M  
 b. Explain the construction and working of ionization displacement transducer 6M

**OR**

- Q.4** a. What is Hall effect? Show how a proximity meter can be made using a Hall element 5M  
 b. Describe the constructional features of magnetostrictive transducer and obtain relation between input and output 7M

**UNIT-III**

- Q.5** a. Explain the operation of Self balancing servo operated potentiometer 6M  
 b. Explain the process of feedback in temperature balance system. 6M

**OR**

- Q.6** a. Explain about accelerometer system. 6M  
 b. Explain the working principle of pneumatic load cell 6M

**UNIT-IV**

- Q.7** a. Briefly explain the single channel and multi channel DAS 6M  
 b. With the help of a block diagram, explain the operation of dual slope integration. 6M

**OR**

- Q.8** a. Distinguish between the periodic signal and a non-periodic signal and give example for each 7M  
 b. Explain the special feature of digital multiplexer. 5M

**UNIT-V**

- Q.9** Write a short note on following
- a. Direct recording 6M
  - b. Analog recorders 6M

**OR**

- Q.10**
- a. Compare FDM and TDM 6M
  - b. What are the important characteristics of a telemetry system? 6M

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