

(Following Paper ID and Roll No. to be filled in your Answer Books)

Paper ID : 132652

Roll No.

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B.TECH.

Theory Examination (Semester-VI) 2015-16

INTELLIGENT INSTRUMENTATION

Time : 3 Hours

Max. Marks : 100

Section-A

- 1. Attempt all parts. All parts carry equal marks. Write answer of each part in short. (2×10=20)**

- (a) Enlist the methods to avoid Instrumental Errors.
- (b) Define Probability of Errors and Normal Distribution of Errors.
- (c) What are Hall Effect Sensors?
- (d) Define Accuracy and Precision.
- (e) Define offset and Dead Band.
- (f) What is tunnel? How it is used in loops?
- (g) What are the three methods that a DAQ device can be grounded?

- (h) What is an Hot-Wire Anemometer?
- (i) Define HART.
- (j) What is an Distributed Control?

Section-B

2. Attempt any five questions from this section. (10×5=50)

- (a)
 - (i) Explain the historical evolution of Virtual instrumentation and its current status.
 - (ii) Explain the silent feature of LabVIEW software environment.
- (b)
 - (i) Explain data types and the importance of their colors in LabVIEW programs with examples.
 - (ii) What is modular programming? What is the difference between viewing sub VIs as icons and expandable nodes?
- (c) Describe the Analog I/O specification of any data acquisition hardware.
- (d) What are the major components of a PC-based data acquisition system? Explain.
- (e) Discuss the physical dimensions of an SCXI module, the positioning of the SCXI bus connector, and cooling information.

- (f) Introduce and Describe the USB peripheral bus standard.
- (g) What is significance of Filter in signal analysis? Explain classification filter. How virtual instrument facilitate analysis technique?
- (h) Explain how Data Socket communication is used for DCS application with example.

Section-C

Attempt any two questions from this section. (15×2=30)

- 3. Explain the PCMCIA role in setting standards for peripheral devices PCI Card, Card Bus & Express Card.
- 4. Explain the overview of DAQ , Types of Data Acquisition Systems and Categories of DAQ signals.
- 5. Explain Briefly any two of the following:
 - a. RS423C.
 - b. Wavelets.
 - c. Curve Fitting Probability.