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BIEL-009

01429

B. Tech. IN ELECTRONICS AND COMMUNICATION ENGINEERING

Term-End Examination

December, 2011

BIEL-009 : ELECTRONIC MEASUREMENT AND INSTR

Time : 3 hours *Maximum Marks : 70*

Note : *Answer **any seven** questions. **Q.10** is **compulsory**. Each question carries **ten** marks.*

1. What are the typical applications of Instrument systems ? Briefly explain them and highlight their area of application. **10**

2. What is an Error ? What are the various types of Errors associated with a measurement system. Explain briefly. **10**

3. Explain "CHI - SQUARE" Test in detail. What are the statistical criteria for goodness of fit ? **10**

4. Explain the construction, principle of operation and working of an AC voltmeter using a rectifier circuit, with the help of relevant circuit diagrams. **10**

5. Explain a capacitive Type Transducer with its types. 5

A capacitive transducer consists of two plates of diameter 2 cm each, separated by an air gap of 0.25 mm. Find the displacement sensitivity. 5

6. What is a Piezo electric Transducer ? Describe its principle of operation and briefly explain its dynamic characteristics. 10

7. Draw the basic block diagram of a CRO and explain it briefly. How will you measure frequency and phase using a CRO. 10

8. Draw the block diagram of a Digital - Storage Oscilloscope. Explain its operation and the role of each unit. 10

9. What is a Spectrum Analyser. Explain it with the aid of a basic block diagram. What resolution, total frequency and dynamic range would be available from an input signal sampled for 4s at a sampling rate of 20 kHz using 10 bit conversion. 10

10. Explain *any two* : 2x5=10

(a) Properties of Gaussian Distribution

(b) Inductive Type Transducers

(c) Temperature Measurement using RTDs.
