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

PAPER ID : 0396 Roll No. | | | | | | | | | | |

B. Tech.

(SEM. VIII) THEORY EXAMINATION 2010-11

DIGITAL MEASUREMENT TECHNIQUES

Time : 3 Hours *Total Marks : 100*

Note : (1) Attempt **all** questions.

(2) Marks are indicated at the end of each Section.

1. Attempt any **two** parts of the following : **(10×2=20)**

   (a) Mention the merits and demerits of digital measurement over analog measurements.

   (b) Explain with block diagram the working of digital ohmmeter.

   (c) Explain the working of a digital voltmeter. List different types of DVMs. How can a DVM be used to measure the current ?

2. Attempt any **two** parts of the following : **(10×2=20)**

   (a) Draw the block diagram of digital frequency meter. Explain its principle of operation.

   (b) Draw the labeled block diagram of :

      (i) Logic analyzer and

      (ii) Dual trace Oscilloscope.

(c) Draw the block diagram of standard signal generator. What features are essential in converting it into square wave and triangular wave generator ?

3. Attempt any **two** parts of the following : **(10×2=20)**

(a) Explain how high frequency can be measured by digital techniques.

(b) Discuss in brief the working of Digital programmable amplifier and filters.

(c) Explain the working of a digital multimeter and mention its use.

4. Attempt any **two** of the following: **(10×2=20)**

(a) Why Sample and hold circuit is considered as an essential component of modern day's instrumentation system ? Explain the following terms that are associated with the problems of sample-hold circuits : (i) finite aperture time, (ii) signal feed through and (iii) Droop.

(b) Describe in detail the successive approximation method of ADC.

(c) What are the types of DAS ? Mention its applications also. Explain the generalized diagram of a digital data acquisition system.

5. Write short notes on any **four** of the following : **(5×4=20)**

(a) R-2R ladder type DAC.

(b) Indirect type ADC

(c) Logarithmic A/D Converter

(d) Decibel meter

(e) Time Division Multiplexing.