Printed Pages—3   **TIC802**

(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.