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

PAPER ID : 0323 Roll No.

B. Tech.

(SEM. IV) THEORY EXAMINATION 2010-11

ELECTRONICS INSTRUMENTATION AND MEASUREMENTS

Time : 3 Hours *Total Marks : 100*

Note : Attempt **all** questions. All questions carry equal marks.

1. Attempt any **four** parts of the following : **(5×4=20)**

   (a) Explain the terms accuracy, sensitivity and resolution as used for indicating instruments.

   (b) Explain different types of errors that may occur in measurements.

   (c) Describe the principle of operation and application of PMMC instruments.

   (d) Describe the principle of operation and use of Galvanometer.

   (e) An ammeter reads 6.7 A and the true value of current is 6.5 A. Determine the error and the correction for this instrument.

   (f) What is meant by arithmetic mean, average deviation and standard deviation ?

2. Attempt any **four** parts of the following : **(5×4=20)**

(a) Describe the working of binary weighted resistance D/A converter.

(b) Explain the difference between 3½ digit and 4 digit displays.

(c) Explain the working of integrating type DVM.

(d) Describe the principle of operation of Electronic Multimeters.

(e) Explain the principle of operation of electronic voltmeter.

(f) Explain how an electronic analog voltmeter can be used to measure alternating current.

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

(a) Define the Q-factor of a coil. Explain with a circuit diagram the construction and principle of operation of a basic Q-meter ?

(b) State various methods of measurement of low resistance. Why ammeter-voltmeter methods not suitable for the precise measurement of low resistance ?

(c) Describe the operation of Kelvin double bridge and Schering bridge.

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

(a) Explain with neat sketches, the working principle of CRO.

(b) Draw the block diagram of D.S.O.P. and explain the function of each block.

(c) Describe CRO Probe and Sampling Oscilloscope.

5. Write short notes on any **two** of the following : **(10×2=20)**

(a) Strip chart recorder

(b) Plotter

(c) X-Y recorder.