



S.E. (Comp.) Semester – IV Examination, November 2009

**ELECTRONIC MEASUREMENTS**

(Revised 2007-08)

Duration : 3 Hours

Total Marks : 100

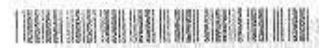
**Instruction :** Answer any five questions with atleast one question from each Module.

**MODULE – I**

1. a) Describe the different types of errors found in measurement systems. 8
- b) Give the classification of standards. 8
- c) What are IEEE standards ? 4
2. a) Draw the circuit of a basic Q-meter and explain its various sources of error. 8
- b) Explain PMMC mechanism with the help of a diagram. 5
- c) Explain Ramp-type DVM with the help of a diagram. 7

**MODULE – II**

3. a) Explain block diagram of a general-purpose oscilloscope. 6
- b) Explain vertical deflection system of an oscilloscope. 8
- c) What are functions of Delay line ? 6
4. a) Explain pi and piston-type attenuator. 6
- b) Explain basic elements of a function generator. 8
- c) Explain wideband sweep generator. 6



## MODULE – III

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| 5. a) List and explain applications of the spectrum analyser.  | 5 |
| b) Explain Heterodyne wave analyser. What are the applications of wave analysers ?   | 8 |
| c) Explain spectrum analysers for higher frequencies.  | 7 |
| 6. a) List and explain measurement errors for frequency and time measurements made by an electronic counter.                         | 6 |
| b) Explain automatic and computing counters with neat block diagram.   | 7 |
| c) Draw and explain basic block diagram of a frequency counter. Also explain input signal processing for a simple frequency counter. | 7 |

## MODULE – IV

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|--|---|
| 7. a) Explain with the help of a diagram, the operation of a photomultiplier tube. | 6 |
| b) Explain capacitive transducer. What are its disadvantages ?                     | 4 |
| c) Explain the operation of LVDT.  | 5 |
| d) Explain the constructional features of a thermocouple temperature transducer.   | 5 |
| 8. a) Explain digital data-acquisition systems.                                    | 5 |
| b) Draw and explain characteristics of an instrumentation amplifier.               | 5 |
| c) Explain analog-to-digital multiplexing.   | 5 |
| d) Write a short note on spatial encoders.   | 5 |