No. of Printed Pages : 3

BIEL-009

B.Tech. – VIEP – ELECTRONICS AND COMMUNICATION ENGINEERING (BTECVI)

Term-End Examination

00616

June, 2016

BIEL-009 : ELECTRONIC MEASUREMENT AND INSTRUMENTATION

Time : 3 hours *Maximum Marks : 70*

Note : *Attempt* ***seven*** *questions in all. Draw neat waveforms and circuit diagrams. Use of scientific calculator is allowed. Missing data, if any, may be suitably assumed.*

1. Explain the following terms : *5×2=10*

(a) Static correction

(b) Relative error

(c) Threshold

(d) Resolution

(e) Dead zone

2. How are errors classified ? Explain briefly the following sources of errors : *4+6=10*

   (a) Noise

   (b) Response time

   (c) Design limitations

   (d) Energy exchanged by interaction

   (e) Transmission

   (f) Deterioration of measuring system

3. Explain the construction of a PMMC meter with the help of a neat sketch. How are different forces produced ? Derive the torque equation. Enlist the advantages and disadvantages of PMMC meters. *10*

4. Describe the construction and working principle of electrostatic voltmeters. Also write their merits and demerits. *10*

5. (a) What is the principle upon which a capacitive transducer works ?

   (b) What are the advantages and disadvantages of capacitive transducers ?

   (c) Give the applications of capacitive transducers. *3+4+3=10*

6. (a) Explain briefly the types of errors encountered in a transducer.

   (b) Draw the basic block diagram of CRO. *2×5=10*

7. Describe the following with schematic diagrams : *2×5=10*

   (a) Voltage telemetering system

   (b) Current telemetering system

8. What is a strip chart recorder ? Why is it also called X-T recorder ? Describe the working of a basic type of strip chart recorder. *10*

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

   (a) Spectrum Analyser

   (b) Heterodyne Harmonic Analyzer

   (c) Hall Effect Transducers