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

00254 Term-End Examination

June, 2017

BIEL-009 : ELECTRONIC MEASUREMENT AND INSTRUMENTATION

Time : 3 hours　　　　　　　　　　*Maximum Marks : 70*

Note : *Attempt any **seven** questions. All questions carry equal marks. Use of scientific calculator is allowed. Suitably assume any missing data.*

1. Discuss the level of standards for a measurement system. Explain the need of electrical standards.　*10*

2. Seven readings of a resistor can be measured by an ohmmeter at different timings. The values of resistances are 405·6 Ω, 405·1 Ω, 405·9 Ω, 405·5 Ω, 405·7 Ω, 405·0 Ω, 405·8 Ω. Calculate the following :　*10*

    (a) Arithmetic mean

    (b) Deviation from mean

    (c) Average deviation

    (d) Standard deviation

    (e) Probable error

3. What is the need of statistical analysis of measured values ? When does it arise ? Suggest a measurement process when the results are subjected to this analysis. *10*

4. With a neat circuit diagram, explain the construction and working of a true RMS voltmeter. *10*

5. Describe the principle of operation of a pressure transducer employing inductive and capacitive transducers. *10*

6. Describe the construction and operation of a CRO using complete block diagram. Briefly explain the function of each block. *10*

7. What is an X-Y recorder ? Describe its functioning giving suitable circuit diagram. *10*

8. What are the functions of a spectrum analyzer ? Explain the construction and working of a heterodyne spectrum analyzer. *10*

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

    (a) Hall Effect Transducer

    (b) Geographical Information System (GIS)

    (c) Function Generator