

**B.Tech. - VIEP - ELECTRICAL ENGINEERING
(BTELVI)**

00443 Term-End Examination
June, 2018

BIEE-019 : ELECTRICAL INSTRUMENTATION

Time : 3 hours

Maximum Marks : 70

Note : Attempt any seven questions. Each question carries equal marks. Use of scientific calculator is permitted. Missing data, if any, may be suitably assumed.

1. Briefly explain the following terms : 5×2=10
 - (a) Accuracy
 - (b) Precision
 - (c) Sensitivity
 - (d) Random Errors
 - (e) Reproducibility

2. (a) What are the differences between recording and integrating instruments ?
(b) Classify different transducers on the basis of principle of operation and explain one of them in brief. 5+5

3. Describe with the help of suitable diagrams, how a DC potentiometer can be used for : 5+5
- (a) Calibration of a voltmeter
 - (b) Calibration of an ammeter
4. Draw a neat block diagram of a telemetry system. Explain different transmission channels used in telemetry. 10
5. Describe with suitable diagrams the working principle of strain gauges. Explain the terms "Poisson's ratio" and "Gauge factor". 10
6. Discuss the working of CRO with the help of complete block diagram. How is it used for the measurement of phase angle of a wave ? 10
7. (a) Describe the working principle of a digital tape recorder. What are its areas of application ?
- (b) A strain gauge has a resistance of 100Ω , the gauge factor of 2.1 and strain of 2×10^{-3} . Obtain the change in resistance. 5+5
8. (a) How is the optical power in a fibre optic network measured ? Explain in brief.
- (b) List the various elements of a digital data acquisition system. 5+5

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

- (a) LVDT
 - (b) PID Controller
 - (c) Optoelectronic Transducers
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