

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

00417 **Term-End Examination**

June, 2014

BIEE-019 : ELECTRICAL INSTRUMENTATION

Time : 3 hours

Maximum Marks : 70

Note : Attempt any seven questions. All questions carry equal marks.

1. Explain the construction of wire wound strain gauge. Derive the expression for the gauge factor. 10
2. (a) Write and explain the factors affecting the choice of transducer. 5
(b) Define the following : 5
 - (i) Transducer
 - (ii) Inverse transducer
 - (iii) Sensor
3. Explain the principle of Hall effect transducer and also explain how the displacement is measured with the Help of Hall effect transducer. 10

4. Use the following values of resistance versus temperature for an RTD to find the linear and quadratic approximation of resistance between 100°C and 130°C about a mean temperature of 115°C.

10

Temperature	Resistance
90	562.66
95	568.03
100	573.40
105	578.77
110	584.13
115	589.48
120	594.84
125	600.18
130	605.52

5. Describe the different electrical methods for measurement of liquid level. Compare their advantages and disadvantages.

7+3

6. Explain the land line telemetry system. Describe the torque balance telemetry system.

10

7. (a) Explain the analog data acquisition system with suitable block diagram.

5

- (b) Explain the different transmission channels and media used in Data acquisition system.

5

8. What is Strip-chart recorder ? Explain the working and constructional details of Galvanometer type recorder with neat diagram. 10
9. (a) Explain the working and construction detail of Spectrum analyzer. 5
- (b) Describe the method of measurement of differential pressure using an inductive transducer as secondary transducer. 5
10. (a) Describe the constructional detail of PID controllers and obtain their transfer function. 7
- (b) Explain the elements of Process control system. 3
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