

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

**Term-End Examination**

**00125**

**December, 2014**

**BIEE-019 : ELECTRICAL INSTRUMENTATION**

*Time : 3 hours*

*Maximum Marks : 70*

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

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1. Describe the working and construction of resistance thermometers. Explain the materials used for RTD along with their properties. Sketch their typical characteristics. 5+3+2=10
2. Explain the different principles of working of a capacitive transducer. 10
3. Explain the land line telemetry system using Synchro-transmitter-receiver pair used in torque transmission mode. 10
4. Describe the construction, working and theory of an electromagnetic type flow meter. Compare the operations of this meter when it is excited by AC and DC. 10

5. Explain the principle of working and constructional details of a photovoltaic cell. Explain why it is very useful for space applications.

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

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Temperature (°C)	Resistance ( $\Omega$ )
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

7. Draw the block diagram of a Storage Oscilloscope and explain the functions of the following :

- (i) Intensity
- (ii) Focus
- (iii) Horizontal and Vertical positioning
- (iv) Synchronization

10

- 8. Describe the methods of measurement of pressure using**
- (i) Capacitive transducer
  - (ii) Photoelectric transducer
  - (iii) L.V.D.T 10
- 9. Write short notes on the following :** 2×5=10
- (i) Fibre optic transducer
  - (ii) Micro sensors
- 10. (a) Explain the digital composite-controller mode. Also draw a neat diagram.** 5
- (b) Describe the basic components of a magnetic tape recorder used for instrumentation applications using different recording techniques.** 5
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