

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

Term-End Examination

December, 2017

00729

**BIEL-009 : ELECTRONIC MEASUREMENT AND
INSTRUMENTATION**

Time : 3 hours

Maximum Marks : 70

Note : Attempt any seven questions. Assume missing data suitably, if any. Use of calculator is allowed.

1. (a) Define Static and Limiting Errors. 3
(b) Draw a block diagram showing basic functional elements of an instrument and explain the function of each. 7
2. Describe in detail different types of dynamic errors in a measurement. 10
3. (a) Define resolution of a Digital Voltmeter (DVM). What are the advantages of digital instruments over analog instruments ? 5
(b) Draw and explain the circuit diagram of a digital frequency meter. 5

4. (a) List various advantages of LCD. Define Deflection Sensitivity of CRT. 5
- (b) With a neat diagram, explain the working principle of CRO. 5
5. (a) Define Transducer. Also classify various types of transducers. 5
- (b) A digital voltmeter can count from 0 to 9999. If the full scale reading is 9.999 V, what is the resolution of full scale reading? 5
6. Explain the construction and working principle of a LVDT. 10
7. (a) Calculate the gauge factor of a strain gauge if a 1.5 mm diameter conductor that is 24 mm long changes by 1 mm and diameter by 0.02 mm under a compression force. 5
- (b) Explain the operating principle of digital tape recording. 5
8. (a) Define the terms Precision, Sensitivity and Linearity. 5
- (b) Discuss the dynamic characteristics of measurement systems. 5

- 9. Draw block diagram of function generator and explain the method of producing sine waves. 10**
- 10. Write short notes on any *two* of the following : $2 \times 5 = 10$**
- (a) Spectrum Analyzer
 - (b) Chi-Square Test
 - (c) Sampling and Digital Storage Types
-