

**DIPLOMA - VIEP - ELECTRONICS AND  
COMMUNICATION ENGINEERING (DECVI) /  
ADVANCED LEVEL CERTIFICATE COURSE IN  
ELECTRONICS AND COMMUNICATION  
ENGINEERING (ACECVI)**

**Term-End Examination**

**December, 2015**

**BIEL-029 : ELECTRONIC MEASUREMENT AND  
INSTRUMENTS**

*Time : 2 hours*

*Maximum Marks : 70*

*Note : Attempt five questions in all. Question no. 1 is compulsory.*

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1. Choose the correct alternative.

- (a) AQUADAG is a 2
- (i) non-conductive coating on the screen of a CRT to collect the high-velocity electrons.
  - (ii) non-conductive coating on the screen of a CRT to collect the secondary-emission electrons.
  - (iii) conductive coating on the screen of a CRT to collect the low-velocity electrons.
  - (iv) None of the above

- (b) The internal resistance of the ammeter should ideally be 2
- (i) Zero
  - (ii) Very large
  - (iii) Very small
  - (iv) Infinite
- (c) For measuring high value of capacitor and low value of inductor, one will use 2
- (i) Series Connection Q-meter
  - (ii) Parallel Connection Q-meter
  - (iii) Direct Connection Q-meter
  - (iv) All the above
- (d) The resolution of a DUM with 4 digit is 2
- (i)  $\frac{1}{4}$
  - (ii)  $\frac{1}{1000}$
  - (iii)  $\frac{1}{100}$
  - (iv) 1%
- (e) The principle of operation of a Q-meter is based on 2
- (i) Self-inductance
  - (ii) Mutual inductance
  - (iii) Series resonance
  - (iv) Parallel resonance

- (f) A dual beam CRO has 2
- (i) Two horizontal amplifiers
  - (ii) Two trigger circuits
  - (iii) Two vertical amplifiers
  - (iv) All the above
- (g) Pressure gauge is an instrument falling under the following category : 2
- (i) Recording instruments
  - (ii) Indicating instruments
  - (iii) Controlling instruments
  - (iv) Integrating instruments
2. (a) Describe the various types of errors in instruments. 7
- (b) Is it necessary that every digital voltmeter should have a high input impedance ? Give reasons. 7
3. (a) Why is calibration of all instruments important ? Explain the calibration procedure. 7
- (b) Define Average and RMS values. Draw the block diagram of an Analog Multimeter. 7
4. (a) Draw the block diagram of a Digital frequency meter and explain its operation. 7
- (b) Explain the working principle of Q-meter. 7

5. (a) What is the need for inserting isolation between the signal generator output and oscillator in a simple signal generator ? What are the different ways in which this can be achieved ? 7
- (b) Explain the working of a pulse generator with the help of a block diagram. 7
6. (a) Explain clearly, with the help of an example, how frequency and phase angle is measured using CRO. 7
- (b) Explain the basic circuit of a D.C. voltmeter. 7
7. (a) Describe the sources of Synchronisation, Blanking circuit and Focus control. 7
- (b) Explain the two types of spectrum analyser. 7
8. Write short notes on any *four* of the following :  $4 \times 3 \frac{1}{2} = 14$
- (a) Signal Generator
- (b) CRT
- (c) Successive Approximation Type DVM
- (d) Sources of Torque
- (e) Types of Error
- (f) Classification of Instruments