



MBV-003-1274004

Seat No. _____

M. Sc. ECI. (Sem. IV) (CBCS) Examination

April / May - 2018

Basic Instrumentation : Paper - 16

(New Course)

Faculty Code : 003

Subject Code : 1274004

Time : 3 Hours]

[Total Marks : 70

- Instructions :** (1) All question carry equal marks.
(2) Figures on right hand side indicate marks.

1 Answer the following : (any seven) **14**

- (1) Give the types of static error.
- (2) What do you mean by error in measurement ?
- (3) State the sources of error.
- (4) Classify the standards of measurement.
- (5) Abbreviation of EPID and LVD.
- (6) State the different types of printer.
- (7) LEDs and Gas discharge plasma are active displays.
(T/F)
- (8) What do you mean by Nixies ?
- (9) Electrostatic method of focusing is used in CRO and electromagnetic focusing is used in TV picture tube.
(T/F)
- (10) Analog meter, offer high accuracy, have high Up impedance and are smaller in size. (T/F)

2 Answer the following : (any two)

(1) (a) Define the following terms: **4**

Instrument, Measurement, Accuracy, Sensitivity

(b) What do mean by Absolute error ? **3**

The expected value of the voltage across a resistor is 80 V. However, the measurement gives a value of 79 V. Calculate :

(i) absolute error, (ii) % error

- (2) (a) Discuss the types of systematic errors in details. 4
 (b) Define the terms Arithmetic mean, Average deviation, Limiting error. 3
- (3) Give the types of instruments which are mainly used as ammeters and voltmeters ? Explain the basic principle of a D'Arsonval movement. 7
- 3** Answer the following :
- (1) Give the classification of display. Explain light emitting diodes (LED). 5
 (2) Write notes on liquid crystal display (LCD). 5
 (3) Discuss about Liquid Vapour Display (LVD). 4
- OR**
- 3** Answer the following :
- (1) What type of movement is used for an ammeter ? 5
 Discussed about the Ayrton shunt or Universal shunt.
 (2) Write notes on chopper type dc amplifier voltmeter. 5
 (3) Discuss about series type ohmmeter. 4
- 4** Answer the following : (any **two**)
- (1) What are the basic components of a digital system ? 5
 Explain the principle of operation of digital frequency meter.
 (2) Discuss the Microprocessor-Based ramp type DVM. 7
 (3) State the advantages of a DVM over an analog meter. Explain the Dual slop integrating type DVM . 7
- 5** Answer the following : (any **two**)
- (1) Draw the basic block diagram of an oscilloscope and explain the function of each block. 7
 (2) Describe an overview of application of a CRO. Draw the internal structure of CRT and describe the different parts of CRT in brief. 7
 (3) Discuss about Decade counter. 7
 (4) Draw the block diagram of a function generator and explain the method of producing sine waves. 7