



College of Engineering, Science and Technology  
School of Electrical and Electronics Engineering

**Trade Diploma in Electronics Engineering**  
**(Instrumentation and Control)**  
**TDEEN**

**EEE580 – Electronic Instrumentation**

Trimester 2, 2016

Date: 15 Aug, 2016

Time: 09:00AM – 12:10PM

Duration – 3 h 10 min (Including 10 min reading time)

Total Marks – 100

Instructions to candidates:

- 1) You are allowed 10 minutes extra reading time during which you are NOT allowed to write.
- 2) Begin each answer on a fresh page and use both sides of the sheet.
- 3) Write your candidate number at the top of each attached sheet.
- 4) Insert all written full-scapes, graph paper, drawing paper or printouts etc. in their correct sequence and secure with string.
- 5) For all sheets of paper on which rough/ draft work has been done, cross it through and you must attach all of them to your answer scripts.
- 6) Write clearly the number(s) of the questions(s) attempted on the top of each sheet.
- 7) Use of mobile phones or other programmable electronic gadget/storage device is NOT ALLOWED

- *Total Number of pages – 03 (Three) including this cover page*

## Section A: Short Answer Questions

*Note – All Questions in this section are compulsory*

- 1) Define various types of errors such as - [5 Marks]
  - a. Gross Errors
  - b. Systematic Errors
  - c. Absolute Errors
  - d. Relative Errors
  
- 2) State the definition of units for Length, Mass and Time. [5 Marks]
  
- 3) State the dimensions for the following - [5 Marks]
  - a. Length
  - b. Mass
  - c. Time
  - d. Area
  - e. Velocity
  
- 4) Explain with suitable circuit diagram the working of op-amp based electronic voltmeter. [5 Marks]
  
- 5) For a Moving Coil Galvanometer, the coil resistance is 1k ohms and the FSD Current is 100uA. Calculate the shunt resistor if this galvanometer is used to measure a full-scale current of 1A. [5 Marks]
  
- 6) Describe with proper circuit connections the working of a 7-segment Common Anode LED display. Draw also the segment diagram with proper segment identification. [5 Marks]
  
- 7) With a suitable circuit diagram explain the working of a high-frequency L-C Oscillator used for RF signal generation. [5 Marks]
  
- 8) With a suitable circuit diagram, explain the working of a Bridge Circuit used for Inductance Measurements. [5 Marks]
  
- 9) Describe the construction and working of a Liquid-Crystal- Display with proper diagram. [5 Marks]
  
- 10) With a suitable circuit diagram, explain the working of a Amplitude Modulator circuit used in a RF signal generator. [5 Marks]

\*\*\* End of Short Answer Questions!

## Section B: Long Answer Questions

*Note – Attempt any 5 of the following questions.*

*If more than 5 questions are attempted, only 5 answers having highest marks will be considered for award of marks.*

- 1) State the definition with mathematical expression for the various units such as –
  - a. Force [2 Marks]
  - b. Work [2 Marks]
  - c. Electrical Current [2 Marks]
  - d. Inductance [2 Marks]
  - e. Electrical Resistance [2 Marks]
- 2) With the help of suitable diagram, explain the construction and working principle of a Permanent Magnet Moving Coil Galvanometer. [10 Marks]
- 3) Explain the working of a 3 digit digital counter with 7-segment readout display and with its respective control inputs. [10 Marks]
- 4) Draw the complete and well-labeled block diagram of a Cathode-Ray-Oscilloscope (CRO). [10 Marks]
- 5) Explain the working of a pulse generator with suitable block diagram and circuit diagram. [10 Marks]
- 6) Explain the use of Digital Multimeters as Standard Calibrating Instruments. [10 Marks]
- 7) Explain with suitable block diagram the working of a paper chart recorder. [10 Marks]

*\*\*\* End of Long Answer Questions!*

*\*\*\*\*\* End of Question Paper \*\*\*\*\**