Code No: **R163201A** **R16** SET - 1

III B. Tech II Semester Regular/Supplementary Examinations, August-2021

ELECTRONIC INSTRUMENTATION

(Civil Engineering)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answer **ALL** the question in **Part-A**
3. Answer any **FOUR** Questions from **Part-B**

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PART –A **(14 Marks)**

1. a) Explain the following Static characteristics of an instrument: [3M]
   i) Accuracy; ii) Resolution; iii) Precision.
   b) What is the resolution of a 4½ digit display on 10V and 100V ranges? [2M]
   c) State the function of a delay line used in the vertical section of an oscilloscope. [2M]
   d) What is the function of a Signal generator and give its applications. [2M]
   e) List various detectors used for ac measurements in ac bridges. [3M]
   f) What is the difference between passive and active transducers? [2M]

PART –B **(56 Marks)**

2. a) What is Loading effect and how it can be nullified? [6M]
   b) A moving coil instrument gives a full scale deflection of 30 mA when the potential difference across its terminals is 150 mV. Calculate: [8M]
   (i) Shunt resistance for a full scale deflection corresponding of 50 A.
   (ii) The series resistance for a full scale reading with 500 V.

3. a) Explain with a neat block diagram the working of a Dual slope type Digital voltmeter. [7M]
   b) Explain the working of Digital Multimeter with a neat labeled block diagram. [7M]

4. a) State the function of the electronic switch. Explain with a diagram the working of an electronic switch. [7M]
   b) Explain the operation of a sampling CRO with a neat diagram. State the function of the staircase generator used in a sampling CRO. [7M]

5. a) State the function of frequency sweeper and marker generator in as weep generator. [7M]
   b) Explain the working of Conventional standard signal generator with a neat block diagram and labeling of each block. [7M]

6. Derive the balance condition for a basic Kelvin's bridge with a neat circuit and necessary explanation. [14M]

7. Write short notes on the following: [14M]
   i) Strain gauges; ii) Piezoelectric transducer; iii) Thermocouple.

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