III B. Tech I Semester Regular Examinations, February-2022
ELECTRONIC MEASUREMENTS & INSTRUMENTATION
(Electronics and Communication Engineering)

Time: 3 hours　　　　　　　　　　　　　　　　　　　　　　　Max. Marks: 75

Answer any **FIVE** Questions **ONE** Question from **Each unit**
All Questions Carry Equal Marks
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UNIT-I
1. a) By using a micrometer screw, the following readings were taken of a certain length: $1.34, 1.38, 1.56, 1.47, 1.42, 1.44, 1.53, 1.48, 1.40, 1.59$ mm. Formulate the necessary equations and calculate the following: [8M]
　i) Arithmetic mean
　ii) Average deviation
　iii) Standard deviation and
　iv) Variance
　 b) Illustrate the types of analog ammeter used for instrumentation. [7M]

(OR)

2. a) Describe the static and dynamic characteristics of measuring instruments. [8M]
　 b) How are basic instruments converted into higher range ammeter? Illustrate the types of analog ammeter used for instrumentation. [7M]

UNIT-II
3. a) What is a random noise generator? Explain with a neat sketch. [8M]

　 b) State and compare different types of Wave Analyzers. [7M]

(OR)

4. a) With neat sketch discuss about Digital Fourier Analyzers. [8M]

　 b) What is the significance of AF sine generator? Explain the principle of operation of AF sine generator. [7M]

UNIT-III
5. a) With a block diagram explain the working of analog CRO. [8M]

　 b) Describe the different types of probes used in CRO. [7M]

(OR)

6. a) Discuss measurement of frequency and phase difference using Lissajou's patterns. [8M]
　 b) Mention the advantages of digital CRO over analog CRO? [7M]

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UNIT-IV

7. a) With neat sketch explain the basic block diagram of the counter in frequency-mode for measuring frequency. [8M]

    b) Derive the bridge balance condition for the Maxwell bridge and Schering bridge. [7M]

(OR)

8. a) Explain the measurements of frequency by Wien's bridge. [8M]

    b) With neat sketch explain the working principle of Q-meter. [7M]

UNIT-V

9. a) Distinguish between active and passive transducers. [8M]
    b) How the strain gauge is used for pressure measurement? Explain. [7M]

(OR)

10. a) Give advantages, disadvantages and applications of LVDT. [8M]
    b) Explain the principle of capacitive transducers. [7M]

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