

Code No: **R1642042**

R16

Set No. 1

IV B.Tech II Semester Advanced Supplementary Examinations, Aug/Sep - 2022
ELECTRONIC MEASUREMENTS AND INSTRUMENTATION

(Electronics and Communication Engineering)

Time: 3 hours

Max. Marks: 70

Question paper consists of Part-A and Part-B

Answer ALL sub questions from Part-A

Answer any FOUR questions from Part-B

PART-A (14 Marks)

1. a) Define the terms Accuracy and Precision. [2]
b) Draw the basic wave analyzer? [2]
c) What are the different controls available on CRO panel? [2]
d) What is Schering bridge? Write the equation of balance for the bridge? [2]
e) List any three classifications of transducers? [3]
f) How do you measure humidity? [3]

PART-B (4x14 = 56 Marks)

2. a) List the different types of errors in measurements? Explain in detail. [7]
b) How the range of DC ammeter and DC voltmeter can be extended. Derive the expression to find the shunt resistance and multiplier resistance? [7]
3. a) Draw the block diagram of a spectrum analyzer and explain its working. [7]
b) With the help of neat sketch explain the working principle of harmonic distortion analyzer. [7]
4. a) Write short notes on Lissajous patterns. Explain how are they used for the measurement of frequency and phase angle? [7]
b) Draw a neat block diagram of a Cathode Ray Oscilloscope and specify the function of each block. Also Explain its working principle [7]
5. a) What is the criterion for balance of a Wheatstone bridge? State the limitations of a Wheatstone bridge. How is it overcome? [7]
b) What is Maxwell's bridge? Derive the equation of balance for the bridge? [7]
6. a) Describe the construction, theory and working of thermocouples. Explain the different types of compensations used in the measuring system? [7]
b) Briefly discuss about the working of piezoelectric transducers and draw its electric equivalent circuit? [7]
7. a) Explain the significance of load cell in static and dynamic force measurement. [7]
b) What do you understand by multichannel DAS? State the different ways in which multichannel DAS are used. [7]

