## MANIPAL INSTITUTE OF TECHNOLOGY

(A constituent unit of MAHE, Manipal)

## THIRD SEMESTER B.TECH. (ELECTRONICS & INSTRUMENTATION ENGG.) ONLINE GRADE IMPROVEMENT/MAKE-UP EXAMINATIONS, JULY - 2021

SUBJECT: Electronic Measurements [ICE 2153]

26-07-2021

## TIME: 2 HOURS

MAX.MARKS: 40

Instructions to candidates: Answer any FOUR FULL questions. Missing data may be suitably assumed.

- 1A. Derive an expression to determine the unknown value of inductance using Anderson bridge. Draw the phasor diagram under the balance condition of the bridge.
- 1B. What is creeping in a single phase induction type energy meter and how is it developed? With a schematic explain the procedure to compensate it.

(5+5)

- 2A. With a block diagram explain the working of different components of CRT.
- 2B. Derive an expression for the vertical deflection on the screen of a cathode ray tube in terms of length of plates, separation distance, accelerating voltage and distance of screen.

(5+5)

- 3A. Explain the operation of passive and active matrix LCD display with neat figures.
- 3B. Draw a circuit for 5X5 LED dot matrix displaying number 'one' addressed in both Cathode Column-Anode Row(CCAR) and Anode Column-Cathode Row(ACCR) arrangement.

(5+5)

- 4A. With neat figures, explain the operation of single and dual slope integrating type analog to digital convertors.
- 4B How a digital frequency meter works? Explain along with operation of gated control flip-flop used for the same.

(5+5)

- 5A. State the uses of Q-meter and explain the procedure of measuring quality factor of unknown components connected in series to Q-meter with necessary equations.
- 5B. With a schematic diagram, explain the operation of potentiometric recorder.

(5+5)

- 6A. Explain the working of sampling oscilloscope with necessary waveforms.
- 6B. Explain the working of swept heterodyne spectrum analyser with relevant diagram.

(5+5)

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