Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY
MANIPAL
A Constituent Institution of Manipal University

THIRD SEMESTER B.TECH. (INSTRUMENTATION AND CONTROL ENGG.)

END SEMESTER EXAMINATIONS, DEC - 2017

SUBJECT: ELECTRICAL AND ELECTRONICS MEASUREMENT [ICE 2102]

Duration: 3 Hour Max. Marks:50

Instructions to Candidates:

- Answer **ALL** the questions.
- Missing data may be suitably assumed.

1A	Discuss the following in measurement of error i) Sum of quantities ii) Difference of quantities iii) Product of quantities	3
1B	Draw the diagram of single phase induction type energy meter and explain the functions of each part	3
1C	Derive an expression for capacitance and its internal resistance using Schering bridge. Draw the phasor diagram for the same	4
2A	Describe the procedure of measurement of frequency by direct and lissajous patterns using CRO.	4
2B	Draw the block diagram of three phase digital energy meter and explain its working	3
2C	Derive the expression for quality factor using Anderson's bridge	3
3A	Explain the working of dual slope Integrating type digital voltmeter with its block diagram	3
3B	Draw the diagram of universal counter and explain the working of time base in it	3
3C	Write a note on sampling oscilloscope with necessary figure and waveforms	4
4A	A digital frequency meter has a time base derived from a 1MHz clock generator frequency divided by decade counters. Determine the measured frequency when 1.512kHz sine wave is applied and the time base uses i) six decade counters and ii) four decade counters.	3
4B	Explain in detail on Dot matrix displays with necessary diagram	3
4C	With the diagram, explain the working of potentiometric recorder	4
5A	How are the displays classified? List different types of display devices.	2
5B	The output of a DC power supply falls from 12V to 11.95V when the AC input drops by 10%. The output also falls from 12V to 11.9V when the load current goes from zero to its maximum	4

level. Determine the source and load effects and line and load regulation

5C Discuss the working of swept super heterodyne spectrum analyzer with the block diagram. 4

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