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P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belagavi)

Third Semester, B.E. - Electronics and Communication Engineering

Semester End Examination; Dec. - 2019

Electronic Instrumentation

Time: 3 hrs *Max. Marks: 100*

Note: **i) PART - A** is compulsory. **Two** marks for each question.
ii) PART - B: Answer any **Two** sub questions (from a, b, c) for Maximum of **18 marks** from each unit.

Q. No.	Questions	Marks
	I : PART - A	**10**
I a.	Define Accuracy and Resolution of measuring instrument.	2
b.	List the advantages of Electrical Transducers.	2
c.	Discuss the limitations of Wheatstone's Bridge.	2
d.	Mention the objective of a Data Acquisition System.	2
e.	Explain the need for delayed time base oscilloscope.	2
	II : PART - B	**90**
	UNIT - I	**18**
1 a.	Discuss briefly the different types of static errors of a measuring instrument.	9
b.	Explain with block diagram operation of True RMS voltmeter.	9
c.	Explain with neat diagram, working of Linear ramp type Digital voltmeter.	9
	UNIT - II	**18**
2 a.	Derive an expression for galvanometer current (I_g) when the Wheatstone bridge is unbalanced. Discuss its applications.	9
b.	Explain with neat circuit diagram the operation of Wien's bridge. Derive the expressions for frequency. Mention the limitations of this bridge.	9
c.	Define Wagner's Earth Connection. Explain with a suitable diagram.	9
	UNIT - III	**18**
3 a.	Define Gauge factor. Derive expression for Gauge factor of Bonded resistance wire strain gauge	9
b.	Explain different forms of thermistors. Discuss its advantages and limitations.	9
c.	Describe the operation of piezo electrical transducer with a diagram. Mention its disadvantages.	9
	UNIT - IV	**18**
4 a.	Explain the working of RF spectrum analyzer.	9
b.	Explain the operation of Differential instrumentation amplifier using transducer bridge.	9
c.	Explain with block diagram operation of frequency selective voltmeter.	9
	UNIT - V	**18**
5 a.	Explain with neat diagram operation of Analog storage oscilloscope.	9
b.	Explain the block diagram of digital storage oscilloscope with necessary waveforms.	9
c.	Sketch and explain the block diagram of frequency synthesizer and its associated waveforms.	9

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