Q.P. Code: 16EC416 **R16**

Reg. No: | | | | | | | | | | |

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech III Year I Semester Regular Examinations November/December 2018

ELECTRONIC MEASUREMENTS & INSTRUMENTATION

(ECE)

Time: 3 hours Max. Marks: 60

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1	**a**	Define static characteristics of a measurement system? Explain the following terms with examples. i) Accuracy ii) Precision iii) Linearity iv) Sensitivity v) Resolution	**5M**
	b	Explain the process of Calibration.	**4M**
	c	A moving coil voltmeter has a uniform scale with 50 divisions, the full scale reading is 250V and 1/20 of scale division can be estimated with a fair degree of certainty. Determine the resolution of the instrument in volts.	**3M**

OR

2	**a**	What is an ohmmeter? Explain the resistance measurement using a Series type ohmmeter.	**6M**
	b	Discuss in detail about the measurements of different parameters using Multimeter with neat sketches.	**6M**

UNIT-II

3	**a**	State and explain the standard specifications of CRO.	**5M**
	b	Elucidate the principle of Sampling Oscilloscope with neat sketches.	**7M**

OR

4	**a**	Describe the constructional and operational details of Digital Storage Oscilloscope.	**6M**
	b	State the operating principle behind the working of Digital Frequency Counter. Explain how it is used for Time interval and Period measurements.	**6M**

UNIT-III

5	**a**	Discuss the importance of a Sweep signal? Explain how it is generated with neat sketches.	**6M**
	b	With a neat diagram, elaborate the operating principle of Spectrum Analyzer.	**6M**

OR

6	**a**	What are the applications of Random Noise generator? Describe how it is generated with neat sketches.	**6M**
	b	Define Harmonic Distortion? Describe how it is measured using Harmonic Distortion Analyzer.	**6M**

UNIT-IV

7	**a**	Draw and explain the Maxwell Bridge with neat diagram and derive the expression for unknown inductance.	**7M**
	b	In the case of Maxwell's bridge, one arm has resistance of 1K Ω, in another arm has also only resistance of 5K Ω. The third arm has a resistor 4.7k Ω in shunt with a capacitor of 1μF. The bridge is excited at frequency of 1KHz. Determine the Values of an unknown Lx in the fourth arm.	**5M**

OR

8	**a**	How the low impedance can be measured using Q-meter? Assume necessary conditions.	**6M**
	b	Discuss in detail about interference and noise reduction techniques.	**6M**

UNIT-V

9	**a**	What is Transducer? Distinguish between Active and Passive Transducer.	**4M**
	b	Explain the principle, working, construction, characteristics and applications of LVDTs.	**8M**
		OR	
10	**a**	Describe the Pressure measurement procedure using Piezoelectric Transducer.	**6M**
	b	Write a short note on i) Acceleration Measurement ii) pH Measurement	**6M**

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