Code No: 07A70402 **R07** **Set No. 2**

IV B.Tech I Semester Examinations,December 2011
ELECTRONIC MEASUREMENTS AND INSTRUMENTATION
Electronics And Communication Engineering

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. Draw the block Schematic for wideband sweep generator and explain its Working. [16]

2. Explain the Principle and working of Rotameter. What are the other types of area flow meters available? Critically compare them in all respects. [16]

3. (a) Explain the difference between an Analog Oscilloscope which can measure upto 100 mHz and Digital Storage Oscilloscope which can measure upto 100 mHz.
   (b) Explain the practical advantages of Digital Storage Oscilloscope. [8+8]

4. (a) Explain about different types of errors that can occur in measurements.
   (b) A Voltmeter having a Sensitivity of 20kΩ/V reads 100V units 150V scale, when connected across an unknown resistor Rx.The current passing through the resistor is 2.0mA .Calculate the % error to loading effect. [8+8]

5. (a) Explain the principle and working of Variable Area Capacitance Transducer.
   (b) What are the advantages of capacitance Transducers? What parameters can be measured with Capacitance Transducers? Explain. [8+8]

6. Draw the block Schematic of CRT and explain its working. What are the Possibilities and Limitations of improving Deflection Sensitivity of CRT? [16]

7. (a) Draw the Maxwell's Bridge Circuit and derive the expression for the unknown inductance Lx.
   (b) In the case of Maxwell's bridge, one arm has resistance of 1KΩ, in another arm has also only resistance of 5KΩ. 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. [8+8]

8. Draw the block Schematic of Tunable selective type Harmonic Distortion Analyzer and explain its working.What are the advantages and disadvantages of those instruments? [16]

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Code No: 07A70402 **R07** **Set No. 4**

IV B.Tech I Semester Examinations,December 2011
ELECTRONIC MEASUREMENTS AND INSTRUMENTATION
Electronics And Communication Engineering

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. Explain the principle and working of Ultrasonic Flow meters. Compare this with other types of flow measurements. [16]
2. Draw the Schematic of wave meter and explain its principle of operation. [16]
3. (a) Explain the constructional details and difference between Ohmmeter series type and shunt type.
   (b) Explain the front panel of a multimeter. Suppose if we are measuring a voltage 230V AC. What should be the voltage range we select. [8+8]
4. (a) Explain the Principle and working of Thermistors. Describe functional Features.
   (b) A thermistor has a temperature coefficient of resistance of - 0.05 over a temperature range of 25^0 to 50^0C. Determine the resistance of Thermistor at 50^0C, if R at 25^0C is 130Ω. [10+6]
5. (a) Draw the sketch of a CRT and explain its operation in detail.
   (b) Determine detection sensitivity of a CRO, given that with usual notation, l =2.5cm, L =20cm, d =2.5 mm, V_d =5V & V_a =2000V. [8+8]
6. Which type of Bridge Circuit is used for coils having Q >10? Draw the Circuit and derive the expression for the unknown inductance. [16]
7. (a) Explain the Principle and working of FM Signal Generator.
   (b) Give the specifications and Typical values of FM signal Generator. [8+8]
8. Explain the Principle of Frequency and Period measurement when do you prefer Frequency measurement over period measurement. Explain. [16]

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Code No: 07A70402 **R07** **Set No. 1**

IV B.Tech I Semester Examinations,December 2011
ELECTRONIC MEASUREMENTS AND INSTRUMENTATION
Electronics And Communication Engineering

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) In a vedio cable, a particular channel program is selected at 78.5 MHz. Explain how you measure its harmonics using Spectrum Analyzer. What are different harmonic frequencies for the above channel.
   (b) Explain the difference between Spectrum Analyzer and Digital Fourier Analyzer. [8+8]
2. (a) Explain about Static and Dynamic characteristics of Instruments.
   (b) What are the different types of Errors that occur in Measurements and explain how to reduce them? [8+8]
3. Draw the block schematic and explain the principle and working of Dual Beam CRO. [16]
4. Which type of Bridge Circuit is used to determine the Dissipation factor of a Capacitor ? Draw the Circuit and derive the expression for the unknown elements. [16]
5. (a) Draw the block diagram of a Pulse Generator Instrument and explain the operation of the Instrument.
   (b) Determine the frequency of Collipitts oscillator with L =100mH C_1 =0.005MF,C_2 = 0.01MF. [8+8]
6. Explain the principle and working of a storage oscilloscope and compare it with normal CRO. [16]
7. Explain about different methods available for Liquid Level measurement and Compare them in all respects. [16]
8. (a) Explain about Piezoelectric effect, and the materials exhibiting this effect
   (b) Define Various Piezoelectric coefficients, and explain about them. [8+8]

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Code No: 07A70402 **R07** **Set No. 3**

IV B.Tech I Semester Examinations,December 2011
ELECTRONIC MEASUREMENTS AND INSTRUMENTATION
Electronics And Communication Engineering

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. Explain the Principle and working of Platinum Resistance Thermometer for Temperature Measurements. Compare this with other types of methods available for Temperature measurement. [16]

2. What are the different types of probes used for CROS. Explain about each of them. [16]

3. (a) Draw the Maxwells bridge Circuit and derive the expression for the unknown Elements at balance.
   (b) Draw the Wien Bridge Circuit and derive expression for the frequency at which The bridge elements are balanced. [8+8]

4. How are spectrum Analyzers classified ? Draw the block Schematic of a general Purpose spectrum Analyzer and explain the principle of operation. [16]

5. (a) Explain about Delay lines in CROs.
   (b) Determine the deflection sensitivity of a CRO, given with usual notation, l =2cm; d =4.5mm; L =20cm; V_a =3200V. [8+8]

6. (a) How Function Generator Instrument is different from signal Generator? Draw the block schematic and explain the principle of function Generator Instrument.
   (b) Determine the oscillator frequency of a Hartley oscillator withL_1 =100mH, L_2 =1mH, M=50mH and c =100pf. [10+6]

7. Draw the Ballast and Wheat Stone Bridge Circuits employed for Strain gauge and Derive the expression for the output Voltage e_o. [16]

8. (a) Draw the sketch of PMMC movement and explain its principle of working with the help of equations.
   (b) What are the different suspension mechanisms employed in moving coil instruments? Explain with the help of necessary sketches. [8+8]

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