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

IV B.Tech I Semester Examinations,NOVEMBER 2010
ELECTRONIC MEASUREMENTS AND INSTRUMENTATION
Electronics And Communication Engineering

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

Answer any FIVE Questions
All Questions carry equal marks

⋆ ⋆ ⋆ ⋆ ⋆

1. Draw the Block Schematic of AF Wave analyzer and explain its principle and Working . [16]

2. (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]

3. Explain the principle and working of Ultrasonic Flow meters. Compare this with other types of flow measurements . [16]

4. (a) Explain the Principle and working of differential Voltmeter .
   (b) Draw the Sketch and explain the principle and operation of True RMS measuring Thermocouple type Voltmeter. [8+8]

5. (a) What are the different Types of signal Generators ? Explain each of them briefly.
   (b) What are the considerations to be made in choosing an oscillator Instrument or Signal Generator Instrument . [8+8]

6. (a) How are the Transducers classified ? Explain about each of them.
   (b) Draw the Sketch of a potentiometer Transducer and explain how physical parameters can be measured . [8+8]

7. (a) Explain about
      i. Triggered Mode
      ii. Sweep Mode of a CRO.
   (b) The time base of a CRO has R = 470kΩ and C = 0.01MF. Determine the % of non-linearity in a Sawtooth output wave form having a period of 0.5m.sec. [8+8]

8. Draw the block Schematic of a Period measuring instrument and explain its Operation clearly . How do you determine whether frequency or period Measuring to be done for a given Signal? Explain. [16]

⋆ ⋆ ⋆ ⋆ ⋆

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

IV B.Tech I Semester Examinations,NOVEMBER 2010
ELECTRONIC MEASUREMENTS AND INSTRUMENTATION
Electronics And Communication Engineering

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

Answer any FIVE Questions
All Questions carry equal marks

⋆ ⋆ ⋆ ⋆ ⋆

1. (a) Explain the constructional details and differentiate between Ohmmeter series type and shunt type.
   (b) Explain the front panel of a multimeter. Suppose if we are neasuring a voltage 230V AC. What should be the voltage range we select. [8+8]
2. (a) What is the maximum sweep rate in kilohertz per second that could be used with a spectrum analyzer without introducing distortion with a 4-kHz Gaussian filter?
   (b) How the SSB modulated wave displayed on a spectrum Analyzer?
   (c) What are the limitations of the tuned circuit harmonic distortion Analyzer? [5+5+6]
3. (a) Explain the principle and construction of LVDT.
   (b) Explain the principle of Strain gauges and give their constructional details. [8+8]
4. (a) Explain the principle and working of Proximity Detector.
   (b) How Humidity and Moisture are measured ? Explain. [8+8]
5. (a) Draw the block diagram of a Pulse Generator Instrument and explain the operation of the Instrument.
   (b) Determine the frequency of Colpitts oscillator with L =100mH C_1 =0.005MF,C_2 = 0.01MF. [8+8]
6. (a) Compare Ac Bridge circuit with DC Bridge circuits .
   (b) Draw the circuit for Maxwells bridge and derive the expression for the unknown element. [8+8]
7. (a) By Lissajous pattern method , explain how the Phase difference between two Sinusoidal Signals can be measured.
   (b) Give the specifications with Typical values of a CRO. [8+8]
8. (a) Draw the block Schematic of frequency counter and explain its operation.
   (b) What are the different types of errors that occur in Frequency/Period measurement? Explain. [8+8]

⋆ ⋆ ⋆ ⋆ ⋆

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

IV B.Tech I Semester Examinations,NOVEMBER 2010
ELECTRONIC MEASUREMENTS AND INSTRUMENTATION
Electronics And Communication Engineering

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

Answer any FIVE Questions
All Questions carry equal marks

⋆ ⋆ ⋆ ⋆ ⋆

1. How are Transducers classified ? Give examples and briefly explain about the Principle of operation of each of them. [16]
2. (a) Explain different types of CRO Probes. Also explain the precautions to be taken while using CRO Probes.
   (b) Explain the importance of CRO's in communication lab. [8+8]
3. (a) Explain the functionality of multimeter. Explain how a continuity test is done by using multimeter.
   (b) Explain how a Passive and Active components can be measuerd using a multimeter. [8+8]
4. With the help of a neat sketch explain the principle and working of Electromagnetic Flow meter. What are the advantages and Limitations of this Method. [16]
5. Draw the block Schematic of a Basic Spectrum Analyzer and explain its working? What are applications of this Instrument. [16]
6. Explain the principle and working of a storage oscilloscope and compare it with normal CRO. [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. (a) Draw the circuit for the Hay's Bridge and derive the expression for unknown Inductance Lx.
   (b) In the case of Hay's Bridge one arm has resistance of 2KΩ .Another arm has a resistance of 4.7KΩ . The third arm 5KΩ in series with a capacitor of 0.1μF. Determine the values of the elements Rx and Lx in the fourth arm. [8+8]

⋆ ⋆ ⋆ ⋆ ⋆

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

IV B.Tech I Semester Examinations,NOVEMBER 2010
ELECTRONIC MEASUREMENTS AND INSTRUMENTATION
Electronics And Communication Engineering

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

Answer any FIVE Questions
All Questions carry equal marks

⋆ ⋆ ⋆ ⋆ ⋆

1. With the help of necessary diagrams, explain the Principle and operation of LVDT. What are the advantages and disadvantages of this transducer? What are applications of LVDT? [16]

2. (a) Explain the front panel of Spectrum Analyzer.
   (b) Explain the importance of Spectrum Analzer in communication systems. [8+8]

3. Explain the principle and working of magnetic flow meters. What are the Advantages and Limitations of these meters. Compare them with other types of Flow measurement techniques. [16]

4. (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]

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) Draw the circuit for a FET input electronic Voltmeter and explain its working.
   (b) Give the Schematic for true RMS responding Voltmeter and explain its operation. [8+8]

7. (a) Explain how Lissajous patterns of Ellipse and circle are formed ? Derive necessary equations to prove the same .
   (b) A Lissajous patterns on a CRO has Six Vertical maximum Values and Five horizontal maximum Values. The frequency of the horizantal input is 1500Hz. Determine the frequency of the Vertical input. [8+8]

8. (a) Which type of Bridge Circuit is used to determine the Dissipated factor of a Capacitor? Draw the Circuit and derive the expression for the unknown elements.
   (b) Draw the Andersons Bridge Circuit and derive the expression for the unknown Elements. [8+8]

⋆ ⋆ ⋆ ⋆ ⋆