

FACULTY OF ENGINEERING**B.E. 3/4 (ECE) II – Semester (New) (Main) Examination, May 2013****Subject : Electronic Instrumentation****Time : 3 hours****Max. Marks : 75****Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.****PART – A (25 Marks)**

1. What are the different factors that affect the choice of a transducer? 2
2. Define accuracy precision resolution. 3
3. What is the significance of limiting error? 2
4. A capacitive transducer uses two quartz diaphragms of area 750mm^2 separated by a distance of 3.5mm. The capacitance of 370pF when no pressure is applied to the diaphragms. Find the value of capacitance when a pressure of 900 KN/m^2 is applied to the top diaphragm which produces a deflection of 0.6 mm. 3
5. What is a hygrometer? Define absolute humidity and relative humidity. 3
6. List the advantages of DVM's. 2
7. Draw a typical ECG waveform and explain its significance. 3
8. List out the salient features of mixed signal oscilloscope. 2
9. List out the salient features of semiconductor thermometers. 2
10. Explain the working principle involved in ultrasonic imaging systems. 3

PART – B (50 Marks)

- 11.a) Explain about various quality management standards. 5
- b) Discuss about elements of ISO 9001 RT and IEEE standards. 5
- 12.a) Compare Piezo electric, photo conductive, photo voltaic and photo emissive transducers. 6
- b) Explain the operation with a LVDT neat diagram. 4
- 13.a) List out the characteristics of pressure, power and loudness measurement. 5
- b) Explain the operation of thermocouple with a neat diagram. 5
- 14.a) Explain about the various features and functionality of digital LCR meter. 5
- b) Discuss in detail about mixed signal oscilloscope. 5
- 15.a) What are resting and action potentials and show their waveforms? 3
- b) With a neat diagram explain the operation of CT scanner and EMG machine. 7
- 16.a) Explain the basic principle involved in spectrum analyzers with a neat block diagram. 5
- b) With a neat block diagram explain the principle of operation involved in ECG machine. 5
17. Write short notes on :
 - a) Virtual instrumentation 5
 - b) Hot wire anemometer 5
