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Third Semester B.E. Degree Examination, Dec.2014/Jan.2015
Advanced Electronics & Instrumentation

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, selecting at least TWO questions from each part.

PART - A

1. a. Define Transducer. Explain general features and classification of transducers. (06 Marks)
 b. Explain inductive transducer. Describe principle and working of LVDT. (08 Marks)
 c. Explain potentiometer in detail. (06 Marks)
2. a. What is IC fabrication? Explain Photolithographic technique in IC fabrication. (05 Marks)
 b. Define shift registers. Explain parallel in serial out shift registers with logic diagram. (05 Marks)
 c. Define synchronous mod - 6 counter using clocked JK flip - flops, on the basis of the following counting sequence. (10 Marks)

Q ₂	Q ₁	Q ₀
0	0	0
0	1	0
0	1	1
0	1	0
1	0	1
0	0	1
0	0	0

repeat

3. a. Explain switching mode operations of P - N junction diode. (06 Marks)
 b. Mention TTL parameters. Explain any one of them. (05 Marks)
 c. Discuss in detail interfacing of CMOS and TTL families. (09 Marks)
4. a. Discuss sample and hold circuit. (05 Marks)
 b. Write a note on specifications of ADC. (05 Marks)
 c. Explain R/2R ladder type digital to analog converter. (10 Marks)

PART - B

5. a. What is Read only memory? What are different types? Explain how a PROM works. (10 Marks)
 b. Explain Field programmable gate arrays. (10 Marks)
6. a. Classify the rotary pumps. Explain each with neat diagram. (10 Marks)
 b. What are ion pumps? Explain. (10 Marks)
7. a. What is electron Probe Micro - analyser? Explain the principle and working. (10 Marks)
 b. Explain the construction, principle and working of Scanning Electron microscope. (10 Marks)
8. a. What is a Mass Spectrometer? Explain the components of a mass spectrometer (10 Marks)
 b. What is DSC? Explain the construction and working of DSC. (10 Marks)