

II B.Tech I Semester(R07) Supplementary Examinations, May/June 2010
INSTRUMENTATION AND CONTROL SYSTEM COMPONENTS
(Electronics & Control Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Explain about the structure, working principle, operation and applications of Geneva Mechanism with a figure.
(b) Explain about the structure, working principle, operation and applications of Integrators with a diagram. [8+8]
2. Explain about the structure, principle of operation, features and applications of the following pneumatic components.
(a) Flip - flops.
(b) Pneumatic cylinders motors. [8+8]
3. (a) Draw the schematic diagram of a synchronous transmission link and explain about the Synchro system (position telemetering) construction details and working principle.
(b) List out the applications of synchros. [12+4]
4. (a) Explain about the Servomechanism, process control and regulators.
(b) Explain the method of control of water level in a cistern using a Hollow Ball with a diagram. [8+8]
5. Explain and write short notes about the following with figures:
(a) Self Inductance
(b) Self Induced Voltage
(c) Mutual Inductance. [6+4+6]
6. (a) Draw the circuit diagram of a Monostable Multivibrator using a 741 IC, explain its operation with waveforms and derive the expression for its period T.
(b) Draw the circuit diagram of a Anti-log Amplifier using 741 ICs and derive the expression for its output voltage. [8+8]
7. (a) Discuss the Fabrication technique of P-I-N photodiode with figures.
(b) What is an optocoupler? Explain the principle of operation of the optocoupler With a block diagram. [6+10]
8. (a) Give details about the requirements of a tunable optical filter for Number of Resolvable channels.
(b) Discuss about the Stimulated Brillouin Scattering Nonlinearity in Fibres with a diagram.
(c) Give details of the Filters based on separated Polarization Beam Splitters with a diagram. [4+4+8]
