

II B.Tech I Semester Supplementary Examinations, November 2005
INSTRUMENTATION COMPONENTS
(Common to Electronics & Instrumentation Engineering and Electronics & Control Engineering)

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

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Describe in detail the Geneva Mechanism.
(b) Explain the basic principle of the instrument used for Condition monitoring of any process. [8+8]
2. (a) Compare and construct the functioning of rupture discs in safety relief valves.
(b) Describe the construction and working of rupture discs
(c) Mention the application of rupture discs. [6+6+4]
3. (a) Express a relationship between various voltages of a synchro transmitter.
(b) How are synchros useful in error detection and correction in a servo control system. [8+8]
4. (a) Discriminate between ordinary electric motors and Servo motors.
(b) Briefly explain the working of D.C and A.C servomotors with neat sketches [6+10]
5. (a) List the different types of windings that are employed in inductors.
(b) List the factors affecting the capacitance of capacitors.
(c) Explain the terms electrical noise, power derating and Boells effect of resistors.
(d) Explain the colour code for resistors. [4+4+4+4]
6. (a) Give the construction, equivalent circuit and characteristics of DIAC and explain its operation.
(b) Sketch SCR phase control circuits for
 - i. 90 degrees phase control
 - ii. 180 degrees phase control.In each case show the load waveform and explain the operation of the circuit. [8+8]
7. (a) Explain the construction features of PIN diode.
(b) Sketch the V-I characteristics of a PIN diode and explain their shape.
(c) How can a PIN diode be used as a switch? [4+8+4]
8. (a) Discuss the spectral transmittance characteristics of an absorption filter.

- (b) What are the parameters to be observed in the design of grating.
- (c) Give two types of mounting of grating and explain the importance of mount
in the grating. [6+4+6]

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