

**IV B.Tech I Semester Supplementary Examinations, April/May 2005**  
**MOTION CONTROL DESIGN**  
**(Mechatronics)**

**Time: 3 hours**

**Max Marks: 80**

**Answer any FIVE Questions**  
**All Questions carry equal marks**

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1. Discuss various types of feeding and indexing mechanisms used in motion control, mentioning their specific applications, limitations and advantages.
2. Classify hydraulic pumps mentioning principle of operation, limitations and specific applications of each type.
3. Draw symbolic representation of at least 20 pneumatic elements in industrial pneumatics, mentioning their specific use.
4. (a) Discuss characteristics of all types of electrical actuators used in motion control.  
(b) Discuss control parameters and its system objectives in motion control.
5. (a) Explain significance of feed forward control loop and explain them with schematic diagram mentioning their short falls.  
(b) With an example explain adaptive control system used in motion control.
6. Compare and contrast analogue computers, digital computers and programmable logic controllers used in system in motion control.
7. Write short notes on any two:
  - (a) Sorting devices in motion control.
  - (b) Motion control aspects in design.
  - (c) Mechanical actuators in motion control.
8. Write short notes on any two:
  - (a) Desirable characteristics of hydraulic fluids.
  - (b) Fuzzy control system used in motion control.
  - (c) Fluidics

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