

**Code: 9A14701**

B.Tech IV Year I Semester (R09) Regular &amp; Supplementary Examinations December 2015

**MECHATRONIC SYSTEMS**

(Mechatronics)

Time: 3 hours

Max. Marks: 70

Answer any FIVE questions  
All questions carry equal marks

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- 1 (a) Explain in brief about important stages of the mechatronics design process.  
(b) What are all the abilities of the human operator and the system must be taken into account while designing? Compare.
- 2 (a) What are the advantages of hydraulic system over mechanical system?  
(b) What are timing belts? When they will use?
- 3 With the help of a neat sketch, explain the construction & working of a PM stepper motor. State its applications and advantages.
- 4 Explain various operations performed by programmable motion controllers. Explain.
- 5 (a) Explain the advantages of PLCs over microprocessors.  
(b) Explain about the ladder diagram with an example.
- 6 Justify about "The merits of fluid power with its utility for increase in productivity".
- 7 Mention various pneumatic elements and give their representation with principle of operation.
- 8 Write short note on:  
(a) Directional control valves.  
(b) Pressure control valves.

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