

<b>R09</b>
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Code: 9A03702

B.Tech IV Year I Semester (R09) Supplementary Examinations, May 2013

**AUTOMATION AND ROBOTICS**

(Mechanical Engineering)

Time: 3 hours

Max Marks: 70

Answer any FIVE questions  
All questions carry equal marks

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1. List out and discuss about the basic elements of an automated system.
2. List out the various types of flow lines. Discuss flow line with and without buffer storage.
3. What are the considerations to be made in assembly line design?
4. Explain various configurations of robot with neat sketches.
5. Explain in detail about DH representation of robot with a suitable example.
6. Discuss the following methods of robot programming:
  - (i) Lead through teaching.
  - (ii) Walk through teaching.
  - (iii) Off-line programming.
7.
  - (a) Classify different sensors and actuators used in robotics.
  - (b) Discuss the working of following actuators:
    - (i) Pneumatic actuators.
    - (ii) Hydraulic actuators.
8.
  - (a) What are the desirable features of a robot for successful machine tool load/unload applications?
  - (b) Describe the applications of a robot in press working operation.

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