

CODE NO: NR422001 SET NO.4

**2005 JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY**

**IV B.TECH. II SEMESTER SUPPLEMENTARY EXAMINATIONS**  
**AUTOMATION IN MANUFACTURE**  
**(PRODUCTION ENGINEERING)**

JULY -2005

TIME: 3 HOURS MAX MARKS:80

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

- 1.(a) Explain the various levels of automation in factory operations.  
(b) What are the various work<sup>o</sup>ow con<sup>-</sup>figurations. Explain with simple sketches.
2. Analyse a two stage transfer line with storage bu<sup>@</sup>ers.
3. Explain the hardware elements of a parts delivery system with a simple sketch.
4. (a) Explain the concept of automated storage and retrieval systems (AS/RS). What are its various types.  
(b) Di<sup>@</sup>fferentiate between an AS/RS and a carousel storage system.
5. (a) What is Adaptive control? What are the various types of Adaptive control?  
(b) How do you convert a CNC lathe into an Adaptive control system which can measure cutting force and control the feed?
6. (a) What is Rapid prototyping? What are its types?  
(b) Explain any one method of Rapid prototyping with a neat sketch.
7. Explain any two of the following:
  - (a) Flexible assembly lines
  - (b) Business process Re-engineering
  - (c) Automation in machine tools
8. Explain any two of the following:
  - (a) Pneumatic actuators
  - (b) Concurrent engineering
  - (c) Automated guided vehicle systems