

CODE NO: NR422001 SET NO.

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

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Explain different types of automated production systems.
(b) Explain different control functions which are used in automated flow line.
2. (a) Explain In-line and rotary type automated flow lines with examples.
(b) An 8-station rotary indexing machine operates with an ideal cycle time of 20sec, the frequency of line stop occurrences is 0.06 stops/cycle on the average. When a stop occurs it takes an average of 3min to make repairs. Determine the following
 - i. Average production time
 - ii. Line efficiency
 - iii. Proportion of down time.
3. (a) State the principles of material handling system.
(b) Explain the working principle of AGVS. State their applications.
4. (a) Discuss the factors affecting the selection of material handling equipment in automation.
(b) Explain the basic components of automated storage and retrieval system.
5. (a) Sketch and explain adaptive control with optimization and state their applications.
(b) What are the advantages of adaptive control? Under what conditions A.C is recommended.
6. (a) Sketch and explain working principle of stereo lithography technique.
(b) Explain various logistics used in BPRE.
7. (a) Distinguish between programmable automated and flexible automation.
(b) Explain with the aid of mathematical model, the difference in scope between automation and CIM.
8. Write short notes on any three of the following:
 - (a) Hydraulic component circuits
 - (b) Buffer storages
 - (c) Concurrent engineering
 - (d) Line balancing.