

CODE NO: NR422001 SET NO.2

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) Distinguish between:
 - i. mechanisation and Automation
 - ii. Flexible automation and CIM(b) Sketch and explain various linear transfer mechanisms.
2. (a) Explain various design and fabrication factors which are considered in automated flow lines.
(b) Explain the importance of Buffer storages in automated flow lines.
3. (a) Distinguish between synchronous transfer system and Asynchronous transfer system.
(b) Sketch and explain elements of the parts delivery system at an assembly work station.
4. (a) Classify various types of material handling systems and state their applications.
(b) Explain the path guidance technologies in AGVS.
5. (a) A roller conveyer moves tote pans in a single direction at a speed of 70m/min. between the load station and unload station. The distance between the two stations is 160m. The time interval required between loading cycles at the load station is 1.0min and the time interval between unloading cycles at the unload station is 0.8min. The unit load on a tote pan consists of 18 parts. Determine the following.
 - i. Total transport work for the handling system.
 - ii. Flow rate of parts on the conveyor system.(b) State the applications of AS/RS system.
6. (a) Define the term index of performance (IP) in Adaptive control and explain a typical Adaptive control machining system that uses temperature as the measured process variable.
(b) Explain the advantages of Adaptive control system.
7. (a) Sketch and explain working principle of rapid prototyping process.
(b) State the applications of business process Re-engineering.
8. Write short notes on any THREE of the following
 - (a) Manual assembly system
 - (b) Interfacing handling and storage with manufacturing.
 - (c) Traffic control and safety in AGV system.
 - (d) Automation strategies.