

IV B.Tech I Semester Supplementary Examinations, April/May 2005
PRODUCTION DESIGN AND ASSEMBLY AUTOMATION
(Mechatronics)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) What are vibratory feeders? Discuss the mechanism of vibratory conveying systems.
(b) How do you estimate the mean conveying velocity? Briefly explain.
2. What are the different mechanical feeders? Explain working and constructional features of any two mechanical feeders.
3. (a) Explain the objectives of the use of flow line automation in the future automated system.
(b) Briefly discuss the continuous transfer mechanisms.
4. (a) What are the various difficulties encountered while operating the feeding and orienting parts in an automated assembly system? Explain how to overcome such difficulties.
(b) Explain the general rules for product design for automation.
5. (a) Discuss the different types of parts insertion and fastening in the manual assembly system.
(b) Explain the effect of part symmetry and chamfer design on insertion operations in an assembly system.
6. (a) Define insertion time and explain how the insertion time can be estimated.
(b) Discuss the advantages of using two hands for manipulation of parts in an assembly system.
7. (a) Enumerate the differences between indexing machines and transfer machines.
(b) What is the necessity to study the feasibility of assembly automation? Discuss.
8. Write short notes on the following: -
 - (a) Analysis of orienting devices.
 - (b) High speed automatic insertion.
 - (c) Applications of DFA methodology.
