

TUT/Department of Production Engineering

TTE-5026 Assembly Automation

Exam 25.11.2008

- Use of extra material is forbidden
- Answer in short yet complete essays

1. Modularization

Define terms;

- a) "Module"
- b) "Modular product family".
- b) MFD-method (step by step)

2. DFA and joining methods

Explain joining methods used in light assembly, and their main characteristics. How DFA affects to the selection of joining methods?

3. Assembly systems

a) Name at least five different robot kinematic structures. Which kinematic structures would you use in an assembly application where assembly operations take place from up to down? Describe structures, working areas, and other properties of these robot types suitable for this application in more detail.

b) Machine vision systems consist of different parts or subsystems. What are these? When designing a machine vision system, what are the most important things to consider when selecting components for each subsystem?

4. Assembly systems and strategies

What things should you consider and what decisions you have to make when designing grippers and gripper systems for your assembly systems?