

PRINCE OF SONGKLA UNIVERSITY
FACULTY OF ENGINEERING

Final Examination: Semester II

Academic Year: 2012

Date: 1 March 2013

Time: 9.00 - 11.00

Subject: 212-651 Neural Network Design and Fuzzy Logic

Room: Robot

Attempt all questions:

1. (a) Detail the internal architecture of a fuzzy logic controller. (6)
- (b) Compare problem solving using fuzzy logic and neural network. (4)
2. For fuzzy logic, discuss the effects of :
 - membership functions of input variable (2)
 - membership functions of output variable (2)
 - rules (2)
 - defuzzification methods (4)
3. Compare of the following evolutionary-based algorithms: (10)
 - genetic algorithm
 - memetic algorithm
 - particle swarm optimization
 - ant-colony optimization
 - shuffled frog leaping algorithm
4. For the design of a PC-based problem solving using fuzzy logic as you did in the class assignment, detail the following:
 - hardware block diagram (2)
 - fuzzy logic architecture selection (2)
 - membership functions selection of input variables (2)
 - membership functions selection of output variable (2)
 - defuzzification methods selection (2)

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