

ECE 448
Midterm Exam for the Lecture
Grading Scheme

Problem 1: 40 points

A. Symbol of a 1-digit BCD adder

5 points

B. RTL code a 1-digit BCD adder using the numeric_std package

Entity declaration: 5 points

Architecture body: 15 points

C. Structural description of a 3-digit BCD adder using the VHDL-93 convention for entity instantiation

Entity declaration: 5 points

Architecture body: 10 points

Problem 2: 30 points

A.-C.

Block diagram: 8 points each

Name: 2 points each

Problem 3: 30 points

HDL code of a controller based on the provided ASM chart

Entity declaration: 5 points

Architecture body – Process 1: 5 points

Architecture body – Process 2: 20 points

Process 1 is the process describing the state register.

Process 2 is the process describing the next-state and output logic.