

ECE 322
SOFTWARE TESTING AND MAINTENANCE
Fall 2019

Assignment #3

Due date: Monday, October 21, 2019 by 3:00 PM
(return to the appropriate box- ECE 322 A1 - 2nd floor of DICE building)

Total: 50 points

Value 10 points

1. A credit union is planning to offer new financial products and considers clients being characterized by gender, city dwelling, and age group (under 25, between 25 and 65, and over 65). There are four new products: A, B, C, and D. Product A will appeal to male city dwellers. Product B will appeal to young (under 25) males. Product C will appeal to female in-between 25 and 65 who do not live in cities. Product D will appeal to all but males over 65. Construct a decision table for this problem. Answer the following:

- (a) what is the maximal number of rules,
- (b) simplify the table and show a collection of resulting test cases.

Value 10 points

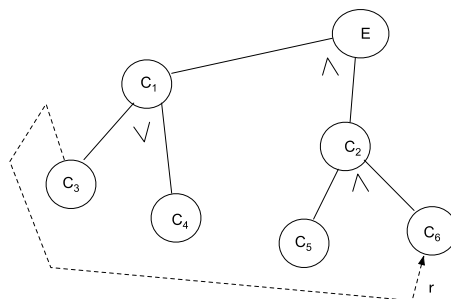
2. Propose test cases using the EPC testing strategy and a weak $n \times 1$ testing strategy for the subdomain described as follows

$$\begin{aligned}x+y &\geq 0 \\ y &< 5 \\ x-y-2 &\leq 0 \\ x &> 0\end{aligned}$$

3. The program accepts three real positive numbers and determines whether these numbers form a triangle that is scalene, isosceles, or equilateral. Show a cause-effect graph for testing this program.

Value 10 points

4. For the following cause-effect graph, develop a suite of test cases. We require the output to be set to 1.



Value 10 points

5. In realizing testing for a given configuration problem considered are the following components: printers -2, plug ins -3, browsers -3, operating systems -3, servers -3, monitors -2, e-mail systems-3, software packages of numeric optimization-3.

How much improvement is achieved when running combinatorial testing over testing all possible combinations?