SE 4367, Software Testing
Homework #10, Control Flow Coverage

For the following program P written in pseudo-code, given the test set T:
T = {t_1 = <4, 2>, t_2 = <90, 2>, t_3 = <56, 1>}

a) What is the statement coverage for T?
b) What is the block coverage for T?
c) What is the decision coverage for T?
d) What is the condition coverage for T?
e) What is the condition/decision coverage for T?

Program P

```
1)   integer X, Y, Z;
2)   input (X, Y);
3)   // Check for legal inputs.
4)   if ((X≥0 AND X≤100)AND(Y>0 AND Y<4))
5)   {
6)        Z = -1;
7)       if (X < 60)
8)       {
9)            Z = 0;
10)           if (X > 80 AND Y == 1)
11)               Z = 59;
12)           Z = Z + 3;
13)      } // end if (X<60)
14)      else
15)      {
16)          Z = 61;
17)          if (Y == 0)
18)              Z = 99;
19)          else
20)              Z = 62;
21)          Z = Z + 1;
22)      } // end else !(X<60)
23)      output (X,Y,Z);
24)  } // end if legal inputs
25)  else
26)       output ("Error *** Invalid input.");
27)  output ("Program ends.");
28)  end;
```

Grading Rubric

Parts are worth 20 points each

Each coverage part

- 10 points for numerator and 10 for denominator if in ratio (fraction) form
- missing the infeasible element(s) is worth 10 points on each coverage problem (denominator wrong)

Answers can be either un-simplified ratios (fractions), decimal numbers [0,1], or percentages for coverage

- if expressed as a decimal, two places is sufficient
- if expressed as a percentage, to the nearest percent is sufficient

If a decimal or percentage answer for the coverage is provided and wrong, but the work is shown with a correct numerator but an incorrect denominator, only take 10 points off.