Problem 5 and 6 answers
CS 569

Problem 5. Given the following C program and control flow graph, here is the postdominator tree, and the control dependence graph, without regions, for the program.

```c
main()
{
    int sum, i, j;
    1. sum = 0;
    2. i = 1;
    3. while (i <= 5) {
        4. scanf("%d", &j);
        5. if (j<0)
            continue;
        6. sum = sum + j;
        7. if (sum>10)
            break;
        8. i = i + 1;
    }
    9. printf("sum is %d", sum);
}
```
**Problem 6.** Given the following Pascal-like program and control flow graph, here is the postdominator tree, and the control dependence graph, without regions, for the program.

```
procedure sqrt(real x):real
    real x1, x2, x3, eps, errval;
begin
    1. x3 = 1;
    2. errval = 0.0;
    3. eps = .001;
    4. if (x <= 0.0)
        5. output("illegal operand");
        6. return errval;
    7. else
        8. if (x < 1)
            9. x1 = x;
        10. x2 = 1;
        11. else
            12. x1 = eps;
        13. x2 = x;
        14. endif;
    15. while ( (x2-x1) >= 2.0*eps )
        16. x3 = (x1+x2)/2.0;
        17. if ( (x3*x3-x)*(x1*x1-x) < 0)
            18. x2 = x3;
        19. else
            20. x1 = x3;
        21. endif;
    22. endwhile;
    23. return x3;
    24. endif;
end.
```