CS 6104
Homework Assignment 5

Given: June 16, 2000 **Due:** June 27, 2000

The point value of each problem is shown in []. The assignment is due by 9:30AM on June 27, 2000. Prepare your solutions in LaTeX, preferably using this file as a starting point. You may submit your solutions in printed form or by email to `cs6104@courses.cs.vt.edu`. Explain your solution to each problem, including references to the appropriate material in the textbook.

Help is available by email as well as during my office hours. It is especially helpful to request clarification or hints by email to `cs6104@courses.cs.vt.edu`, so I can send the response to everyone.

[10] 1. Consider the following character state table for objects $O = \{A, B, C, D, E, F, G\}$ and characters c_1, c_2, and c_3, each with three states.

	Character		
Object	c_1	c_2	c_3
A	z_1	y_2	x_3
B	y_1	z_2	z_3
C	y_1	x_2	z_3
D	z_1	z_2	y_3
E	z_1	z_2	z_3
F	x_1	z_2	x_3
G	y_1	x_2	x_3

Does O have a perfect phylogeny? If so, then give one. If not, then prove there is no perfect phylogeny and give a phylogeny that has as few repetitions of states on its edges as possible.