FSTY 405 — Silviculture II

Midterm, 13 October 2005

Name:

Student number:

- Ensure that your name and student number are correctly entered above.
- Answer in the spaces provided, writing down clearly any intermediate steps. Use the reverse as scratch pad. Writing just the final numerical answer is *not* acceptable.
- Write clearly, and use ink, not pencil.
- Answer clearly and to the point. Nonsense will be penalized.
- Pages: 4. Questions: 4, worth 1 mark each.
- Time: 45 minutes.
- Info (you may or may not need this):
  $a^x a^y = a^{x+y}$, $(a^x)^y = a^{xy}$, $y = a^x \Leftrightarrow x = \log_a y$,
  $\log_e x \equiv \ln x$, $e^x \equiv \exp(x)$,
  $\log_a xy = \log_a x + \log_a y$, $\log_a x^y = y \log_a x$.
  Area of circle of radius r: πr^2.

1. What is:

   (a) Competition index

   (b) Guide curve

   (c) Area potentially available

   (d) Eichhorn's law

2. Clutter *et al* give a site index model for loblolly pine

$$H = 1.231S \exp(-5.190/A) \ ,$$

where S is site index (base-age 25), H is top height, and A is age. At what age does the height equal half the site index?

3. Given the yield equation

$$\log_{10}(V + 1) = 3.534 - 14.02/t + 0.2314S/t \ ,$$

where V is volume (m^3/ha), t is age (years), and S is site index. For site index 21, find (including the correct units):

(a) The mean annual increment at age 10 years.

(b) The periodic annual increment between 8 and 10 years.

4. What are empirical and normal yield tables, and how do they differ?