

Homework Set No. 4, Physics 835
Deadline – Wednesday, February 6, 2008

1. (10 pts) Jackson Problem 7.22.
2. (10 pts) Jackson Problem 8.4 (a) (Hint: the solution involves Bessel functions. Use the known roots of Bessel functions from Jackson for “numerical” part.)
3. (10 pts) Consider a TM mode in a rectangular waveguide. Given E_z for this mode (see the footnote on page 362 of Jackson), find E_x , E_y , H_x , H_y using either Maxwell equations or the formulas derived in class.
4. (10 pts) Jackson Problem 8.5 (a). (Find the electric and magnetic fields of the modes, not just frequencies.)