Read the questions carefully. Don't make them harder than they are! Answer succinctly and precisely. Show all of your work.

1. Suppose that the variance of monthly returns on the market portfolio is 0.001875, and the monthly expected return on the market is 0.0075. Also the yield to maturity on the 30-year US Treasury bond is 4.5%. Maxim Integrated Products (MXIM) has a monthly return variance of 0.0252, and its correlation with the market portfolio is 0.44. Suppose the market capitalization of MXIM's stock is $15 billion, and MXIM has $3 billion in long-term debt. MXIM has a marginal income tax rate of 23%. The yield to maturity on MXIM's 30-year bonds is 7.5%.

   (a) **(10 points)** What is MXIM's β?

   (b) **(10 points)** Of MXIM's total return variance, what percentage is systematic?

   (c) **(10 points)** Of MXIM's total return variance, what percentage is diversifiable?

(d) **(10 points)** What is MXIM's annualized cost of equity capital according to the CAPM?

(e) **(20 points)** What is MXIM's annualized weighted average cost of capital?

2. **(40 points)** Suppose that the variance of annual returns on the market portfolio is 0.0144, and the annual expected return on the market is 6%. Also the yield to maturity on the 30-year US Treasury bond is 3%. Johnson and Johnson (JNJ) has an annual return variance of 0.09, and its correlation with the market portfolio is 0.4. Suppose the market capitalization of JNJ's stock is $440 billion, and JNJ has $60 billion in long-term debt. JNJ has a marginal income tax rate of 26%. The yield to maturity on JNJ's 30-year bonds is 4%. What is JNJ's annualized weighted average cost of capital?