EXAM FM QUESTIONS OF THE WEEK

Week of March 20/06

A company wishes to issue a 5-year bond with annual coupons at rate r.

The face amount and redemption value of the bond are to be the same.

The current term structure for annual effective yields on zero coupon bonds of differing maturities is:

Maturity	1 Yr.	2 Yr.	3 Yr.	4 Yr.	5 Yr.
Yield	4.0%	4.5%	5.0%	6.0%	7.0%

The company issuing the bond wants the bond to be issued at par. Find the coupon rate that will result in the bond being issued at par.

The solution can be found below.

Week of March 20/06 - Solution

With a face amount of 1, the bond price is

$$\frac{1}{1.07^5} + r\left[\frac{1}{1.04} + \frac{1}{1.045^2} + \frac{1}{1.05^3} + \frac{1}{1.06^4} + \frac{1}{1.07^5}\right] .$$

In order for the bond to be issued at par, the bond price at issue is 1.
Therefore

$$\frac{1}{1.07^5} + r\left[\frac{1}{1.04} + \frac{1}{1.045^2} + \frac{1}{1.05^3} + \frac{1}{1.06^4} + \frac{1}{1.07^5}\right] = 1 .$$

Solving for r results in $r = .0676$.