Session 6: Post Class tests

1. Gerard Enterprises is a publicly traded company. You are trying to estimate how much debt it has outstanding, to compute a cost of capital. Which of the following items would you not include in debt and why?
   a. Short term bank loans
   b. Commercial paper
   c. Corporate bonds
   d. Deferred Tax Liabilities
   e. None of the above

2. Lipscott Inc. is a publicly traded company that has $100 million in bank loans on its books, with a stated interest rate of 3% and $150 million in publicly traded bonds, with a coupon rate of 3.6%. The company currently has a bond rating of BBB, with a default spread of 1.5% over the risk free rate. If the current T.Bill rate is 1%, the ten-year T.Bond rate is 3.5% and the marginal tax rate is 35%, what is the pre-tax cost of debt?
   a. 3.36%
   b. 3.60%
   c. 5.00%
   d. 2.50%
   e. 3.50%

3. Alfred Inc. is a publicly traded sporting goods company. The company has $250 million in book value of debt, reported interest expenses of $12.5 million in the most recent year and has an average maturity of 5 years for the debt. The pre-tax cost of debt for the firm is currently 4%. What is your best estimate of the market value of debt outstanding at the firm? (You can assume annual interest payments and a marginal tax rate of 40%)
   a. $261.12 million
   b. $250.00 million
   c. $280.29 million
   d. $243.01 million
   e. $156.68 million

4. Faraday Enterprises is a publicly traded company. It currently has 10 million shares trading at $12/share and $150 million in book value of equity. The firm also has book value of debt of $75 million and market value of debt of $80 million. The cost of equity for the company is 9%, the pre-tax cost of debt is 4% and the marginal tax rate is 40%. What is the cost of capital?
   a. 7.4%
   b. 7.0%
   c. 7.7%
   d. 6.36%
   e. None of the above

5. Lester Inc. has 5 million shares outstanding, trading at $20/share. The company has one convertible bond, with a face value of $100 million, a ten-year maturity and a coupon rate of 2%; the bond has a market value of $120 million. If the
current cost of equity for the firm is 10% and the pre-tax cost of debt is 5%, what is the cost of capital for the firm? (The marginal tax rate is 40%)

a. 5.20%
b. 6.18%
c. 7.55%
d. 8.25%
e. None of the above
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1. **d. Deferred tax liabilities.** These are not legal commitments in the conventional sense but accounting liabilities (reflecting expectations that the firm will have to pay more in taxes in the future).

2. **d. 5.00%.** The pre-tax cost of debt is a long term cost of borrowing money today.
   - Pre-tax cost of debt = 3.5% + 1.5% = 5%

3. **a. $261.12 million.** To compute the market value of the debt, discount the expected interest expenses and the principal on the debt at the pre-tax cost of debt
   - Market value of debt = 12.5*(1-1.04^5)/0.04+250/1.04^5 = $261.12 m
   - The first term is the present value of $12.5 million as an annuity for 5 years, discounted back at 4%. The second term is the present value of the face value of the debt at the end of year 5.

4. **d. 6.6%.** The first step is to compute the market value weights of debt and equity
   - Debt to capital ratio = 80/(120+80) = 40%
   - Cost of capital = 9%(.6) + 4% (1-.4) (.4) = 6.36%

5. **c. 7.55%.** The first step is to decompose the convertible bond into its debt and equity components. To do this, value the convertible bond as if it were a straight bond by discounting the coupons and face value back at the pre-tax cost of debt:
   - Value of straight bond portion = $2 million (PV of annuity for 10 years @5%) + $100 million/1.05^10 = $76.83 million
   - Value of conversion option = Market value of convertible – Straight bond value = $120 - $76.83 = $43.17 million
   - Overall value of equity = $143.17 million
   - Cost of capital = 10% (143.17/(143.17+76.83)) + 5% (1-.4)
     (76.83/(143.17+76.83)) = 7.55%