Session 17A: Post class test solutions

1. **c. The cost of capital will remain unchanged**. To prove it, start with the cost of capital at a zero debt ratio. With the unlevered beta of 0.90:
    - Cost of equity = Cost of capital = 3%+0.9*6% = 8.4%
    - If the firm moves to any debt to capital ratio (say 20%), it will be borrowing at the risk free rate of 3% (since there is no default risk) and the levered beta will rise
      Levered beta = 0.90 (1+ (1-0) (20/80)) = 1.125
      Cost of equity = 3% +1.125 (6%) = 9.75%
      Cost of capital = 9.75% (.8) + 3% (.2) = 8.4%
2. **c. The firm should be all debt funded.** If you give debt the tax benefits and not offset it with expected bankruptcy costs, firms should be predominantly debt funded..
3. **d. Retained earnings, Debt, Convertible debt, New stock issues**. Managers value flexibility and control. Retained earnings is best since it gives them both. Straight debt and convertible debt make you accountable to lenders (which reduces flexibility and control), but companies seem to prefer this to issuing new stock, which require you to get board approval and open you up for examination by investors.
4. **b. The operating income of the firm will not change as the debt ratio changes**. For a lower cost of capital to result in higher firm value, the operating cash flow of the firm will have to remain fixed (or unchanged) as the debt ratio changes. For operating cash flow to not change, operating income has to be fixed as the debt ratio changes.