Student name:\_\_\_\_\_\_\_\_\_\_

**MULTIPLE CHOICE - Choose the one alternative that best completes the statement or answers the question.  
1)** A firm’s \_\_\_\_\_\_\_\_ is referred to as its capital structure.

1) \_\_\_\_\_\_

A) mix of current and fixed assets   
 B) amount of capital invested in the firm  
 C) typical amount of dividends it pays  
 D) mix of debt and equity used to finance its assets  
 E) amount of cash versus receivables

**2)** A general rule for managers to follow is to set the firm’s capital structure such that the firm’s:

2) \_\_\_\_\_\_

A) size is maximized.   
 B) value is maximized.  
 C) bondholders are secured.  
 D) suppliers of raw materials are satisfied.  
 E) dividend payout is maximized.

**3)** A manager should attempt to maximize the value of the firm by changing the capital structure if and only if the value of the firm increases:

3) \_\_\_\_\_\_

A) as a result of the change.   
 B) to the sole benefit of the managers.  
 C) to the sole benefit of the debtholders.  
 D) while also decreasing shareholder value.  
 E) while holding stockholder value constant.

**4)** A firm should always select the capital structure that:

4) \_\_\_\_\_\_

A) produces the highest cost of capital.   
 B) maximizes the value of the firm.  
 C) minimizes taxes.  
 D) maximizes current dividends.  
 E) has no debt.

**5)** Zehra invested in Cameron Corporation stock when the firm was financed solely with equity. The firm now has a debt-equity ratio of .4. To maintain her original level of leverage, Zehra must:

5) \_\_\_\_\_\_

A) borrow money and purchase additional shares of Cameron stock.   
 B) maintain her current position in Cameron stock.  
 C) sell some shares of Cameron stock and hold the proceeds in cash.  
 D) sell some shares of Cameron stock and lend out the proceeds.  
 E) sell 60 percent of her Cameron stock and invest the proceeds in risk-free securities.

**6)** In the absence of taxes, the capital structure chosen by a firm is irrelevant because of:

6) \_\_\_\_\_\_

A) taxes.   
 B) the interest tax shield.  
 C) the relationship between dividends and earnings per share.  
 D) the effects of leverage on the cost of equity.  
 E) homemade leverage.

**7)** According to MM Proposition I with no tax:

7) \_\_\_\_\_\_

A) business risk determines the return on assets.   
 B) the cost of equity rises as leverage rises.  
 C) it is completely irrelevant how a firm arranges its finances.  
 D) a firm should borrow money to the point where the tax benefit from debt is equal to the cost of the increased probability of financial distress.  
 E) financial risk is determined by the debt-equity ratio.

**8)** According to \_\_\_\_\_\_\_\_ the value of the levered firm equals the value of the unlevered firm.

8) \_\_\_\_\_\_

A) MM Proposition I with no tax   
 B) MM Proposition II with no tax  
 C) MM Proposition I with tax  
 D) MM Proposition II with tax  
 E) both MM Proposition I with tax and MM Proposition I without tax

**9)** The idea of homemade leverage is employed as an argument in support of:

9) \_\_\_\_\_\_

A) MM Proposition I with no tax.   
 B) MM Proposition II with no tax.  
 C) MM Proposition I with tax.  
 D) MM Proposition II with tax.  
 E) no MM Proposition.

**10)** A levered firm is a company that has:

10) \_\_\_\_\_\_

A) accounts payable as its only liability.   
 B) some debt in its capital structure.  
 C) an all-equity capital structure.  
 D) a tax loss carry forward.  
 E) taxable income.

**11)** The effects of financial leverage depend on the operating earnings of the company. Based on this relationship, assume you graph the EPS and EBI for a firm, while ignoring taxes. Which one of these statements correctly states a relationship illustrated by the graph?

11) \_\_\_\_\_\_

A) Financial leverage decreases the slope of the EPS line.   
 B) Below the break-even point unlevered structures have a lower EPS for every dollar of EBI than levered structures do.  
 C) Above the break-even point the increase in EPS for unlevered structures is greater than that of levered structures for every dollar increase in EBI.  
 D) Leverage only provides value above the break-even point.  
 E) Above the break-even point, the unlevered structure is preferred.

**12)** MM Proposition I without taxes proposes that:

12) \_\_\_\_\_\_

A) the value of an unlevered firm exceeds that of a levered firm.   
 B) there is one ideal capital structure for each firm.  
 C) leverage does not affect the value of the firm.  
 D) shareholder wealth is directly affected by the capital structure selected.  
 E) the value of a levered firm exceeds that of an unlevered firm.

**13)** A key underlying assumption of MM Proposition I without taxes is that:

13) \_\_\_\_\_\_

A) financial leverage increases risk.   
 B) individuals can borrow at lower rates than corporations.  
 C) individuals and corporations borrow at the same rate.  
 D) managers always act to maximize the value of the firm.  
 E) corporations are all-equity financed.

**14)** In an EPS-EBI graphical relationship, the slope of the debt line is steeper than the equity line. The debt line has a lower intercept because:

14) \_\_\_\_\_\_

A) more shares are outstanding for the same level of EBI.   
 B) the break-even point is higher with debt.  
 C) a fixed interest charge must be paid even at low earnings.  
 D) the amount of interest per share has only a positive effect on the intercept.  
 E) the break-even point is lower with debt.

**15)** When comparing levered versus unlevered capital structures, leverage works to increase EPS for high levels of EBIT because interest payments on the debt:

15) \_\_\_\_\_\_

A) vary with EBIT levels.   
 B) stay fixed, leaving less income to be distributed among fewer shares.  
 C) stay fixed, leaving more income to be distributed among fewer shares.  
 D) stay fixed, leaving less income to be distributed among more shares.  
 E) stay fixed, leaving more income to be distributed among more shares.

**16)** The increase in risk to shareholders when financial leverage is added is best evidenced by:

16) \_\_\_\_\_\_

A) higher EPS as EBIT increases.   
 B) a higher variability of EPS with partial debt financing than with all-equity financing.  
 C) increased use of homemade leverage.  
 D) the increase in taxes.  
 E) decreasing earnings as EBIT increases.

**17)** The use of personal borrowing to change the overall amount of financial leverage to which an individual is exposed is called:

17) \_\_\_\_\_\_

A) homemade leverage.   
 B) dividend recapture.  
 C) the weighted average cost of capital.  
 D) private debt placement.  
 E) personal offset.

**18)** The concept that the value of the firm is independent of its capital structure is called:

18) \_\_\_\_\_\_

A) the capital asset pricing model.   
 B) MM Proposition I (no taxes).  
 C) MM Proposition II (no taxes).  
 D) the law of one price.  
 E) the efficient markets hypothesis.

**19)** The unlevered cost of capital equals:

19) \_\_\_\_\_\_

A) the cost of capital for a firm with no equity in its capital structure.   
 B) the cost of capital for a firm with no debt in its capital structure.  
 C) the interest tax shield times pretax net income.  
 D) the cost of preferred stock for an all-equity firm.  
 E) the profit margin for a firm with some debt in its capital structure.

**20)** According to MM Proposition II with no taxes, the:

20) \_\_\_\_\_\_

A) return on assets is determined by financial risk.   
 B) required return on equity is a linear function of the firm’s debt-equity ratio.  
 C) cost of equity in inversely related to the firm’s debt-equity ratio.  
 D) cost of debt must equal the cost of equity.  
 E) required return on assets exceeds the weighted average cost of capital.

**21)** MM Proposition II with no taxes supports the argument that a firm’s:

21) \_\_\_\_\_\_

A) unlevered equity is risk-free.   
 B) cost of equity is inversely related to the firm’s debt-equity level.  
 C) cost of equity is unaffected by the firm’s unlevered cost of capital.  
 D) WACC will exceed the unlevered firm’s cost of equity.  
 E) WACC remains constant even if the firm changes its capital structure.

**22)** Because interest expense is tax deductible, levered firms can benefit from the:

22) \_\_\_\_\_\_

A) tax shield from debt.   
 B) depreciable basis.  
 C) financing umbrella.  
 D) current yield.  
 E) tax-loss carryback.

**23)** MM Proposition I without taxes does not hold when corporate taxes are introduced because:

23) \_\_\_\_\_\_

A) levered firms pay less in taxes than identical unlevered firms.   
 B) bondholders require higher rates of return than stockholders do.  
 C) earnings per share are no longer relevant with taxes.  
 D) dividends become a tax shield.  
 E) debt is more expensive than equity.

**24)** MM Proposition I with taxes supports the theory that:

24) \_\_\_\_\_\_

A) there is a positive linear relationship between the proportion of debt versus equity in a levered firm and the firm's value.   
 B) the value of a firm is inversely related to the amount of leverage used by the firm.  
 C) the value of an unlevered firm is equal to the value of a levered firm plus the value of the interest tax shield.  
 D) a firm’s cost of capital is the same regardless of the mix of debt and equity used by the firm.  
 E) a firm’s weighted average cost of capital increases as the debt-equity ratio of the firm rises.

**25)** According to MM Proposition I with taxes:

25) \_\_\_\_\_\_

A) capital structure does not affect firm value.   
 B) increasing the debt-equity ratio increases firm value.  
 C) firm value is maximized when the firm is all-equity financed.  
 D) the cost of equity rises as the debt-equity ratio increases.  
 E) the unlevered cost of equity is equal to *R*WACC.

**26)** MM Proposition I with taxes demonstrates that the:

26) \_\_\_\_\_\_

A) optimal capital structure is the one that is totally financed with equity.   
 B) capital structure of the firm does not matter because investors can use homemade leverage.  
 C) firm is better off with debt based on the weighted average cost of capital.  
 D) presence of taxes causes debt to add value to a firm.  
 E) cost of equity increases as the debt-equity ratio of a firm increases.

**27)** MM Proposition II with taxes:

27) \_\_\_\_\_\_

A) explains how a firm’s WACC increases with the use of financial leverage.   
 B) reveals that the tax shield on debt causes an increase in the value of a firm.  
 C) supports the argument that business risk is determined by the capital structure employed by a firm.  
 D) supports the argument that the cost of equity decreases as the debt-equity ratio increases.  
 E) reaches the final conclusion that the capital structure decision is irrelevant to the value of a firm.

**28)** According to MM Proposition II:

28) \_\_\_\_\_\_

A) the capital structure of a firm is irrelevant to the value of the firm.   
 B) the cost of levered equity depends solely on the return on debt, the debt-equity ratio, and the tax rate.  
 C) a firm’s cost of equity is a positive linear function of the firm's capital structure.  
 D) the cost of equity is equivalent to the required return on the total assets of a levered firm.  
 E) the cost of debt is inversely related to a firm’s debt-equity ratio.

**29)** The tax shield on debt has a value of zero when:

29) \_\_\_\_\_\_

A) the firm’s debt-equity ratio is exactly equal to 1.   
 B) the firm’s debt-equity ratio is exactly .5.  
 C) the firm is unlevered.  
 D) shareholders fully utilize homemade leverage.  
 E) *RS* is less than *R*0.

**30)** The tax shield on debt is one reason why:

30) \_\_\_\_\_\_

A) the required rate of return on assets rises when debt is added to the capital structure.   
 B) a firm’s unlevered value is less than its levered value.  
 C) a firm’s net cost of debt is generally less than its cost of equity.  
 D) the cost of debt is equal to the cost of equity for a levered firm.  
 E) firms prefer equity financing over debt financing.

**31)** Cuellar’s has debt with a book value of $285,000 and a market value of $263,000. The firm’s equity has a book value of $418,000 and a market value of $612,000. The tax rate is 21 percent and the cost of capital is 12.4 percent. What is the market value of this firm based on MM Proposition I without taxes?

31) \_\_\_\_\_\_

A) $703,000   
 B) $897,000  
 C) $875,000  
 D) $819,770  
 E) $837,150

**32)** Fowler Wellness is an all-equity firm with 360,000 shares of stock outstanding. The company will borrow $1.8 million at 4.5 percent interest to repurchase 50,000 shares of the outstanding stock. Assume there are no taxes. What is the value of the firm?

32) \_\_\_\_\_\_

A) $8,960,000   
 B) $9,240,000  
 C) $12,500,000  
 D) $12,960,000  
 E) $11,550,000

**33)** Hidalgo Realty is an all-equity firm with 60,000 shares of stock outstanding. The company will borrow $120,000 to buy out the 4,800 shares of one of its stockholders. Ignoring taxes, what is the total value of the firm today?

33) \_\_\_\_\_\_

A) $1,500,000   
 B) $1,960,000  
 C) $960,000  
 D) $1,380,000  
 E) $1,620,000

**34)** A 40 percent owner of Nguyen Medical Group is electing to retire. The other shareholders in this closely held, all-equity firm have agreed that the firm will borrow $1.8 million to purchase the retiring owner’s 3,000 shares of stock. Ignoring taxes, what is the total value of this firm?

34) \_\_\_\_\_\_

A) $4.8 million   
 B) $4.5 million  
 C) $5.4 million  
 D) $3.0million  
 E) $6.0 million

**35)** Assume an unlevered firm has total assets of $6,000, earnings before interest and taxes of $600, and 500 shares of stock outstanding. Further assume the firm decides to change 40 percent of its capital structure to debt with an interest rate of 8 percent. Ignore taxes. What will be the amount of the change in the earnings per share as a result of this change in the capital structure?

35) \_\_\_\_\_\_

A) $.16   
 B) $.09  
 C) No change  
 D) −$.09  
 E) −$.16

**36)** Assume an initial scenario where a levered firm has total assets of $8,000, earnings before interest and taxes of $600, 400 shares of stock outstanding, a debt-equity ratio of .25, and a cost of debt of 7 percent. Now assume a second scenario where the firm changes to an all-equity structure by issuing new shares to pay off debt while a shareholder holding 10 percent of the stock borrows funds at 7 percent and uses homemade leverage to offset the firm’s change in capital structure. Ignore taxes. What are the net earnings for this shareholder under the initial scenario? Under the second scenario?

36) \_\_\_\_\_\_

A) $90.00; $90.00   
 B) $90.00; $112.50  
 C) $48.80; $38.80  
 D) $48.80; $48.80  
 E) $45.00; $48.80

**37)** A firm has a debt-equity ratio of .52, a pretax cost of debt of 6.5 percent, and a required return on assets of 12 percent. Ignoring taxes, what is the cost of equity?

37) \_\_\_\_\_\_

A) 14.36 percent   
 B) 20.36 percent  
 C) 14.86 percent  
 D) 12.00 percent  
 E) 12.86 percent

**38)** McCord has a levered cost of equity of 14.29 percent and a pretax cost of debt of 7.23 percent. The required return on the assets is 11 percent. What is the firm’s debt-equity ratio based on MM Proposition II with no taxes?

38) \_\_\_\_\_\_

A) .67   
 B) .87  
 C) .72  
 D) .75  
 E) .81

**39)** Max Iger Designs has a debt-equity ratio of .68. The firm's required return on assets is 11.7 percent and its levered cost of equity is 15.54 percent. What is the pretax cost of debt based on MM Proposition II with no taxes?

39) \_\_\_\_\_\_

A) 6.76 percent   
 B) 6.39 percent  
 C) 7.25 percent  
 D) 6.05 percent  
 E) 7.50 percent

**40)** A firm has zero debt in its capital structure and has an overall cost of capital of 10 percent. The firm is considering a new capital structure with 60 percent debt at an interest rate of 8 percent. Assuming there are no taxes or other imperfections, what would be the cost of equity with the new capital structure?

40) \_\_\_\_\_\_

A) 9 percent   
 B) 10 percent  
 C) 13 percent  
 D) 14 percent  
 E) 11 percent

**41)** A firm has a debt-equity ratio of .48. Its cost of debt is 7 percent and its WACC is 10.8 percent. What is its cost of equity if there are no taxes or other imperfections?

41) \_\_\_\_\_\_

A) 10.97 percent   
 B) 13.05 percent  
 C) 12.62 percent  
 D) 11.46 percent  
 E) 13.67 percent

**42)** A firm has a debt-equity ratio of 1, a cost of equity of 16 percent, and a cost of debt of 8 percent. If there are no taxes or other imperfections, what is its unlevered cost of equity?

42) \_\_\_\_\_\_

A) 8 percent   
 B) 10 percent  
 C) 12 percent  
 D) 14 percent  
 E) 16 percent

**43)** A firm has a debt-equity ratio of .55 with a cost of debt of 6.7 percent. If it had no debt, its cost of equity would be 14.5 percent. What is its levered cost of equity assuming there are no taxes or other imperfections?

43) \_\_\_\_\_\_

A) 18.96 percent   
 B) 15.82 percent  
 C) 17.94 percent  
 D) 18.79 percent  
 E) 13.67 percent

**44)** If a firm is unlevered and has a cost of equity capital of 13.7 percent, what would be the cost of equity if its debt-equity ratio was revised to .4? The expected cost of debt is 7.4 percent and there are no taxes.

44) \_\_\_\_\_\_

A) 15.54 percent   
 B) 15.67 percent  
 C) 16.09 percent  
 D) 16.22 percent  
 E) 16.36 percent

**45)** Stewart Holding has $224,000 of debt outstanding that is selling at par and has a coupon rate of 5.5 percent. If the tax rate is 21 percent, what is the present value of the tax shield on debt?

45) \_\_\_\_\_\_

A) $12,320   
 B) $9,733  
 C) $17,696  
 D) $47,040  
 E) $37,162

**46)** A firm has debt of $7,000, equity of $12,000, a cost of debt of 7 percent, a cost of equity of 14 percent, and a tax rate of 21 percent. What is the firm’s weighted average cost of capital?

46) \_\_\_\_\_\_

A) 8.45 percent   
 B) 9.90 percent  
 C) 10.88 percent  
 D) 12.50 percent  
 E) 11.27 percent

**47)** Daniels & Daniels has expected earnings before interest and taxes of $3,800, an unlevered cost of capital of 15.4 percent, and a tax rate of 22 percent. The company also has $2,600 of debt with a coupon rate of 5.7 percent. The debt is selling at par value. What is the value of this firm?

47) \_\_\_\_\_\_

A) $15,585   
 B) $19,819  
 C) $12,115  
 D) $12,055  
 E) $17,700

**48)** Harbinger is currently an all-equity firm that has 22,000 shares of stock outstanding with a market price of $27 per share. The current cost of equity is 12 percent and the tax rate is 23 percent. The firm is considering adding $225,000 of debt with a coupon rate of 6.25 percent to its capital structure. The debt will sell at par. What will be the levered value of the equity?

48) \_\_\_\_\_\_

A) $325,500   
 B) $420,750  
 C) $521,250  
 D) $472,750  
 E) $594,000

**49)** Awning Supply has expected earnings before interest and taxes of $17,100 forever, an unlevered cost of capital of 12.4 percent, and debt with both a book and face value of $25,000. The debt has an annual 6.2 percent coupon. If the tax rate is 21 percent, what is the value of the firm?

49) \_\_\_\_\_\_

A) $91,016   
 B) $137,903  
 C) $114,194  
 D) $106,667  
 E) $146,403

**50)** Yuan Creative is an unlevered firm with an aftertax net income of $78,400. The unlevered cost of capital is 11.4 percent and the tax rate is 23 percent. What is the value of this firm?

50) \_\_\_\_\_\_

A) $447,017   
 B) $581,818  
 C) $687,719  
 D) $613,309  
 E) $537,900

**51)** An unlevered firm has a cost of capital of 13.6 percent and earnings before interest and taxes of $138,000. A levered firm with the same operations and assets has both a book value and a face value of debt of $520,000 with an annual coupon of 7 percent. The applicable tax rate is 21 percent. What is the value of the levered firm?

51) \_\_\_\_\_\_

A) $996,421   
 B) $907,679  
 C) $1,184,929  
 D) $910,818  
 E) $1,191,506

**52)** Agave Group has an unlevered cost of capital of 11.6 percent, a cost of debt of 7.9 percent, and a tax rate of 23 percent. What is the target debt-equity ratio if the targeted levered cost of equity is 12.6 percent?

52) \_\_\_\_\_\_

A) .44   
 B) .39  
 C) .35  
 D) .56  
 E) .53

**53)** Trident Hotels has debt with both a face and a market value of $227,000. This debt has a coupon rate of 7 percent and pays interest annually. The expected earnings before interest and taxes is $87,200, the tax rate is 21 percent, and the unlevered cost of capital is 12 percent. What is the firm’s cost of equity?

53) \_\_\_\_\_\_

A) 13.25 percent   
 B) 13.89 percent  
 C) 13.92 percent  
 D) 14.27 percent  
 E) 14.14 percent

**54)** Dressel Pools has an unlevered cost of capital of 10.3 percent, a tax rate of 21 percent, and expected earnings before interest and taxes of $1,900. The company has $4,000 in bonds outstanding that have an annual coupon of 7 percent. If the bonds are selling at par, what is the cost of equity?

54) \_\_\_\_\_\_

A) 11.33 percent   
 B) 9.34 percent  
 C) 10.72 percent  
 D) 9.99 percent  
 E) 11.21 percent

**55)** Hossain Health has a levered cost of equity of 13.84 percent and an unlevered cost of capital of 12.5 percent. The company has $5,000 in debt that is selling at par. The levered value of the firm is $14,600 and the tax rate is 25 percent. What is the pretax cost of debt?

55) \_\_\_\_\_\_

A) 7.92 percent   
 B) 9.07 percent  
 C) 8.16 percent  
 D) 8.84 percent  
 E) 9.00 percent

**56)** Reisboards has a cost of equity of 13.76 percent and a pretax cost of debt of 8.5 percent. The debt-equity ratio is .60 and the tax rate is 21 percent. What is the unlevered cost of capital?

56) \_\_\_\_\_\_

A) 11.83 percent   
 B) 12.07 percent  
 C) 13.97 percent  
 D) 14.08 percent  
 E) 14.60 percent

**57)** An all-equity firm has a cost of capital of 12.8 percent and a tax rate of 23 percent. At the firm’s target debt-equity ratio, the pretax cost of debt is 7.35 percent, and the cost of equity is 15.07 percent. What is the target debt-equity ratio?

57) \_\_\_\_\_\_

A) .67   
 B) .49  
 C) .51  
 D) .61  
 E) .54

**58)** Thompson Theaters has a debt-equity ratio of .60. The pretax cost of debt is 9 percent while the unlevered cost of capital is 14 percent. What is the cost of equity if the tax rate is 23 percent?

58) \_\_\_\_\_\_

A) 7.52 percent   
 B) 8.78 percent  
 C) 16.31 percent  
 D) 16.83 percent  
 E) 17.30 percent

**59)** A firm has a bond issue outstanding with a par value of $450,000. The bonds have a coupon rate of 6 percent, pay interest semiannually, and have a market price equal to 102 percent of par value. The firm’s tax rate is 21 percent. What is the amount of the annual tax shield on the debt?

59) \_\_\_\_\_\_

A) $5,783   
 B) $21,330  
 C) $94,500  
 D) $27,000  
 E) $5,670

**60)** Yelne Florist has 2,000 bonds outstanding with a face value of $1,000 each, a market value of $1,060 each, and a coupon rate of 9 percent. The interest is paid semiannually. What is the amount of the annual tax shield on debt if the tax rate is 23 percent?

60) \_\_\_\_\_\_

A) $44,872   
 B) $460,000  
 C) $43,884  
 D) $41,400  
 E) $487,600

**61)** Denney Resort has $12,000 of debt outstanding that is selling at 101.2 percent of par, has a coupon rate of 8 percent, and a current yield of 7.91 percent. The tax rate is 21 percent. What is the present value of the tax shield on debt?

61) \_\_\_\_\_\_

A) $3,188   
 B) $3,887  
 C) $2,520  
 D) $2,500  
 E) $2,550

**62)** A firm has debt of $5,000, equity of $16,000, a cost of debt of 8 percent, a cost of equity of 12 percent, and a tax rate of 21 percent. What is the firm’s weighted average cost of capital?

62) \_\_\_\_\_\_

A) 10.20 percent   
 B) 9.94 percent  
 C) 10.90 percent  
 D) 10.65 percent  
 E) 11.05 percent

**63)** A firm has zero debt and an overall cost of capital of 13.8 percent. The firm is considering a new capital structure with 40 percent debt. The interest rate on the debt would be 7.2 percent and the corporate tax rate is 21 percent. What would be the cost of equity with the new capital structure?

63) \_\_\_\_\_\_

A) 16.90 percent   
 B) 16.11 percent  
 C) 17.28 percent  
 D) 17.34 percent  
 E) 17.59 percent

**64)** A firm has a debt-equity ratio of .64, a cost of equity of 13.04 percent, and a cost of debt of 8 percent. Assume the corporate tax rate is 25 percent. What would be the cost of equity if the firm were all-equity financed?

64) \_\_\_\_\_\_

A) 11.30 percent   
 B) 11.41 percent  
 C) 13.33 percent  
 D) 12.42 percent  
 E) 12.25 percent

**65)** A firm has an equity multiplier of 1.57, an unlevered cost of equity of 14 percent, a levered cost of equity of 15.6 percent, and a tax rate of 21 percent. What is the cost of debt?

65) \_\_\_\_\_\_

A) 11.25 percent   
 B) 10.50 percent  
 C) 10.45 percent  
 D) 11.00 percent  
 E) 10.33 percent

**66)** Javed Medical Management has 5,000 bonds outstanding with a face value of $1,000 each and a coupon rate of 7.65 percent. Interest is paid semiannually. What is the amount of the annual tax shield on debt if the tax rate is 23 percent?

66) \_\_\_\_\_\_

A) $157,650   
 B) $160,125  
 C) $1,062,500  
 D) $1,150,000  
 E) $87,975

**67)** Pineda Gallery is currently an all-equity firm with earnings before interest and taxes of $338,000 and a cost of equity of 14.2 percent. Assume the tax rate is 22 percent. The firm is considering adding $400,000 of debt with a coupon rate of 7 percent to its capital structure. The debt will be sold at par value. What is the levered value of the equity?

67) \_\_\_\_\_\_

A) $1,987,408   
 B) $1,544,620  
 C) $2,038,519  
 D) $986,420  
 E) $1,944,620

**68)** Movsovitz has an all-equity value of $648,200, a cost of equity of 11.7 percent, and a tax rate of 35 percent. Assume the firm’s capital structure changes to 30 percent debt followed by a lowering of the tax rate to 21 percent. What will be the change in the levered value of the firm due to the reduction in the tax rate?

68) \_\_\_\_\_\_

A) $16,020   
 B) $17,520  
 C) $29,169  
 D) −$27,224  
 E) −$17,520

**69)** The Greenbriar is an all-equity firm with a total market value of $569,000 and 22,300 shares of stock outstanding. Management is considering issuing $177,000 of debt at an interest rate of 10 percent and using the proceeds on a stock repurchase. Ignore taxes. How many shares will the firm repurchase if it issues the debt securities?

69) \_\_\_\_\_\_

A) 6,937 shares   
 B) 694shares  
 C) 8,408shares  
 D) 56,900shares  
 E) 7,708shares

**70)** Ornaments, Incorporated, is an all-equity firm with a total market value of $509,000 and 17,400 shares of stock outstanding. Management believes the earnings before interest and taxes (EBIT) will be $71,300 if the economy is normal. If there is a recession, EBIT will be 30 percent lower, and if there is a boom, EBIT will be 40 percent higher. The tax rate is 35 percent. What is the EPS in a recession?

70) \_\_\_\_\_\_

A) $2.66   
 B) $3.46  
 C) $1.86  
 D) $3.73  
 E) $1.60

**71)** Summer Tan, Incorporated, is an all-equity firm with a total market value of $674,000 and 44,300 shares of stock outstanding. Management believes the earnings before interest and taxes (EBIT) will be $90,900 if the economy is normal. If there is a recession, EBIT will be 30 percent lower, and if there is a boom, EBIT will be 40 percent higher. The tax rate is 35 percent. What is the EPS in a boom?

71) \_\_\_\_\_\_

A) $.80   
 B) $1.87  
 C) $.93  
 D) $1.33  
 E) $1.73

**72)** Northern Wood Products is an all-equity firm with 18,700 shares of stock outstanding and a total market value of $360,000. Based on its current capital structure, the firm is expected to have earnings before interest and taxes of $30,000 if the economy is normal, $17,200 if the economy is in a recession, and $42,800 if the economy booms. Ignore taxes. Management is considering issuing $90,400 of debt with an interest rate of 6 percent. If the firm issues the debt, the proceeds will be used to repurchase stock. What will the earnings per share be if the debt is issued and the economy is in a recession?

72) \_\_\_\_\_\_

A) $.63   
 B) $2.67  
 C) $1.75  
 D) $.84  
 E) $1.21

**73)** Southern Wind is an all-equity firm with 17,300 shares of stock outstanding and a total market value of $353,000. Based on its current capital structure, the firm is expected to have earnings before interest and taxes of $26,500 if the economy is normal, $14,400 if the economy is in a recession, and $38,600 if the economy booms. Ignore taxes. Management is considering issuing $88,300 of debt with an interest rate of 7 percent. If the firm issues the debt, the proceeds will be used to repurchase stock. What will the earnings per share be if the debt is issued and the economy booms?

73) \_\_\_\_\_\_

A) $2.50   
 B) $1.57  
 C) $2.71  
 D) $2.13  
 E) $2.89

**74)** Cross Town Cookies is an all-equity firm with a total market value of $685,000. The firm has 45,000 shares of stock outstanding. Management is considering issuing $140,000 of debt at an interest rate of 7 percent and using the proceeds to repurchase shares. Before the debt issue, EBIT will be $58,600. What is the EPS if the debt is issued? Ignore taxes.

74) \_\_\_\_\_\_

A) $1.36   
 B) $1.58  
 C) $1.21  
 D) $1.48  
 E) $.98

**75)** Kelso Electric is an all-equity firm with 42,500 shares of stock outstanding. The company is considering the issue of $290,000 in debt at an interest rate of 8 percent and using the proceeds to repurchase stock. Under the new capital structure, there would be 26,000 shares of stock outstanding. Ignore taxes. What is the break-even EBIT between the two plans?

75) \_\_\_\_\_\_

A) $59,758   
 B) $41,127  
 C) $64,737  
 D) $36,558  
 E) $51,221

**76)** Hotel Cortez is an all-equity firm that has 12,400 shares of stock outstanding at a market price of $39 per share. The firm's management has decided to issue $76,000 worth of debt and use the funds to repurchase shares of the outstanding stock. The interest rate on the debt will be 9 percent. What is the break-even EBIT?

76) \_\_\_\_\_\_

A) $43,524   
 B) $24  
 C) $47,151  
 D) $37,306  
 E) $22

**77)** Simone's Sweets is an all-equity firm that has 7,900 shares of stock outstanding at a market price of $24 per share. The firm's management has decided to issue $72,000 worth of debt at an interest rate of 6 percent. The funds will be used to repurchase shares of the outstanding stock. What are the earnings per share at the break-even EBIT?

77) \_\_\_\_\_\_

A) $1.44   
 B) $3.79  
 C) $1.73  
 D) $2.32  
 E) $2.52

**78)** Northwestern Lumber Products currently has 19,500 shares of stock outstanding. Patricia, the financial manager, is considering issuing $147,000 of debt at an interest rate of 6.8 percent. Given this, how many shares of stock will be outstanding once the debt is issued if the break-even level of EBIT between these two capital structure options is $69,000? Ignore taxes.

78) \_\_\_\_\_\_

A) 15,841.29 shares   
 B) 15,563.37 shares  
 C) 14,292.89 shares  
 D) 18,064.63 shares  
 E) 16,675.04 shares

**79)** Southwest Sands currently has 27,000 shares of stock outstanding. It is considering issuing $158,000 of debt at an interest rate of 8.3 percent. The break-even level of EBIT between these two capital structure options is $84,000. How many shares of stock will be repurchased if the company undergoes the recapitalization? Ignore taxes.

79) \_\_\_\_\_\_

A) 4,004.45 shares   
 B) 4,215.21 shares  
 C) 3,613.04 shares  
 D) 4,566.48 shares  
 E) 3,311.95 shares

**80)** Northeast Lobster currently has 19,200 shares of stock outstanding. It is considering issuing $142,000 of debt at an interest rate of 6.8 percent. The break-even level of EBIT between these two capital structure options is $105,000. For this to be true, what is the current stock price? Ignore taxes.

80) \_\_\_\_\_\_

A) $88.08   
 B) $80.42  
 C) $76.40  
 D) $91.91  
 E) $84.25

**81)** A firm is considering two different capital structures. The first option is an all-equity firm with 33,500 shares of stock. The levered option is 22,200 shares of stock plus some debt. Ignoring taxes, the break-even EBIT between these two options is $49,200. How much money is the firm considering borrowing if the interest rate is 6.4 percent?

81) \_\_\_\_\_\_

A) $259,310   
 B) $271,658  
 C) $296,354  
 D) $232,658  
 E) $246,344

**82)** Room and Board is considering two capital structures that have a break-even EBIT of $19,200. The all-equity capital structure would have 14,000 shares outstanding. The levered capital structure would have 10,300 shares of stock and $77,000 of debt. What is the interest rate on the debt? Ignore taxes.

82) \_\_\_\_\_\_

A) 6.26%   
 B) 7.53%  
 C) 6.90%  
 D) 6.59%  
 E) 5.91%

**83)** Taunton's is an all-equity firm that has 161,500 shares of stock outstanding. The CFO is considering borrowing $359,000 at 7 percent interest to repurchase 30,500 shares. Ignoring taxes, what is the value of the firm?

83) \_\_\_\_\_\_

A) $2,339,612   
 B) $2,456,592  
 C) $1,991,455  
 D) $2,172,496  
 E) $1,900,934

**84)** Gulf Shores Inn is comparing two separate capital structures. The first structure consists of 305,000 shares of stock and no debt. The second structure consists of 258,000 shares of stock and $1.82 million of debt. What is the price per share of equity?

84) \_\_\_\_\_\_

A) $50.04   
 B) $40.57  
 C) $38.72  
 D) $44.26  
 E) $47.66

**85)** The Tree House has a pretax cost of debt of 6.6 percent and a return on assets of 11.4 percent. The debt–equity ratio is .44. Ignore taxes. What is the cost of equity?

85) \_\_\_\_\_\_

A) 14.74%   
 B) 13.95%  
 C) 14.19%  
 D) 9.29%  
 E) 13.51%

**86)** The Outlet Mall has a cost of equity of 13.8 percent, a pretax cost of debt of 6.9 percent, and a return on assets of 11.6 percent. Ignore taxes. What is the debt–equity ratio?

86) \_\_\_\_\_\_

A) .56   
 B) 2.14  
 C) .53  
 D) 1.89  
 E) .47

**87)** Debbie's Cookies has a return on assets of 8.9 percent and a cost of equity of 13.3 percent. What is the pretax cost of debt if the debt–equity ratio is .79? Ignore taxes.

87) \_\_\_\_\_\_

A) 3.03%   
 B) 3.85%  
 C) 3.33%  
 D) 3.52%  
 E) 3.70%

**88)** Brick House Cafe has a tax rate of 40 percent and paid total taxes of $59,600. The company had an interest expense of $26,500. What was the value of the interest tax shield?

88) \_\_\_\_\_\_

A) $24,794   
 B) $17,220  
 C) $10,600  
 D) $11,564  
 E) $23,840

**89)** Rappaport Industries has 5,250 perpetual bonds outstanding with a face value of $1,000 each. The bonds have a coupon rate of 6.2 percent and a yield to maturity of 6.5 percent. The tax rate is 34 percent. What is the present value of the interest tax shield?

89) \_\_\_\_\_\_

A) $325,500   
 B) $110,670  
 C) $1,606,500  
 D) $1,785,000  
 E) $116,025

**90)** Bassett Fruit Farm expects its EBIT to be $341,000 a year forever. Currently, the firm has no debt. The cost of equity is 12.4 percent and the tax rate is 40 percent. The company is in the process of issuing $2.4 million worth of bonds at par that carry an annual coupon of 6 percent. What is the unlevered value of the firm?

90) \_\_\_\_\_\_

A) $1,833,333   
 B) $1,650,000  
 C) $2,610,000  
 D) $1,485,000  
 E) $2,221,667

**91)** Kline Construction is an all-equity firm that has projected perpetual EBIT of $292,000. The current cost of equity is 11.6 percent and the tax rate is 35 percent. The company is in the process of issuing $908,000 worth of perpetual bonds with an annual coupon rate of 5.8 percent at par. What is the value of the levered firm?

91) \_\_\_\_\_\_

A) $1,954,007   
 B) $1,636,207  
 C) $1,472,586  
 D) $1,818,008  
 E) $1,886,007

**92)** Stevenson's Bakery is an all-equity firm that has projected perpetual EBIT of $195,000 per year. The cost of equity is 13.9 percent and the tax rate is 40 percent. The firm can borrow perpetual debt at 5.9 percent. Currently, the firm is considering taking on debt equal to 105 percent of its unlevered value. What is the firm's levered value?

92) \_\_\_\_\_\_

A) $1,195,252   
 B) $1,287,194  
 C) $757,554  
 D) $841,727  
 E) $1,018,489

**93)** A firm has a cost of debt of 5.7 percent and a cost of equity of 14.3 percent. The debt–equity ratio is 1.11. There are no taxes. What is the firm's weighted average cost of capital?

93) \_\_\_\_\_\_

A) 8.80%   
 B) 10.29%  
 C) 8.15%  
 D) 9.02%  
 E) 9.78%

**ESSAY. Write your answer in the space provided or on a separate sheet of paper.  
94)** Explain homemade leverage and why it matters.

**95)** Explain why the weighted average cost of capital is invariant to the firm’s debt-equity ratio in the absence of corporate taxes.

**96)** Discuss MM Propositions I and II in a world without taxes. List the basic assumptions, results, and intuition of the model.

**97)** In each of the theories of capital structure, the cost of equity rises as the amount of debt increases. So why don’t financial managers use as little debt as possible to keep the cost of equity down? After all, isn’t the goal of the firm to maximize share value and doesn’t a lower discount rate applied to the firm’s cash flows increase the present value of those cash flows?

**98)** Based on MM Propositions, with and without taxes, how much time should a financial manager spend analyzing the capital structure of his firm?

**99)** Discuss MM Propositions I and II in a world with taxes. List the basic assumptions, results, and intuition of the model.

**Answer Key**Test name: Chapter 16

1) D

2) B

3) A

4) B

5) D

6) E

7) C

8) A

9) A

10) B

11) D

12) C

13) C

14) C

15) C

16) B

17) A

18) B

19) B

20) B

21) E

22) A

23) A

24) A

25) B

26) D

27) B

28) C

29) C

30) C

31) C

*V* ≡ $263,000 + 612,000  
 *V* ≡ $875,000

32) D

Firm value = ($1,800,000/50,000)(360,000)  
 Firm value = $12,960,000

33) A

Firm value = ($120,000/4,800)(60,000)  
 Firm value = $1,500,000

34) B

Firm value = $1.8 million/.40  
 Firm value = $4.5 million

35) A

EPSUnlevered = $600/500  
 EPSUnlevered = $1.20  
   
 EPSLevered = [$600 − .08(.4)($6,000)]/[500(1 − .4)]  
 EPSLevered = $1.36  
   
 ΔEPS = $1.36 − 1.20  
 ΔEPS = $.16

36) D

For the firm:  
   
 EPSLevered = [$600 − .07(.25/1.25)($8,000)]/400  
 EPSLevered = $1.22  
   
 Price per share = (1/1.25)($8,000)/400  
 Price per share = $16  
   
 New shares issued = (.25/1.25)($8,000)/$16  
 New shares issued = 100  
   
 EPSUnlevered = $600/(400 + 100)  
 EPSUnlevered = $1.20  
   
 For the shareholder:  
   
 Net earningsInitial scenario = $1.22(.1)(400)  
 Net earningsInitial scenario = $48.80  
   
 For the second scenario:  
   
 Initial shareholder equity = .1(400)($16)  
 Initial shareholder equity = $640  
   
 Shareholder debt = .25($640)  
 Shareholder debt = $160  
   
 Net earningsSecond scenario = [.1(400) + $160/$16)]($1.20) − .07($160)  
 Net earningsSecond scenario = $48.80

37) C

*RS* = .12 + .52(.12 − .065)  
 *RS* = .1486, or 14.86%

38) B

*RS* = .1429 = .11 + *B/S*(.11 − .0723)  
 *B/S* = .87

39) D

*RS* = .1554 = .117 + .68(.117 − *RB*)  
 *RB* = .0605, or 6.05%

40) C

*R*s = .10 + (.60/.40)(.10 − .08)  
 *R*s = .13, or 13%

41) C

.108 = (.48/1.48)(.07) + (1/1.48)*RS*  
 *RS* = .1262, or 12.62%

42) C

.16 = *r*0 + 1(*r*0 − .08)  
 *r*0 = .12, or 12%

43) D

*Rs* = .145 + .55(.145 − .067)  
 *Rs* = .1879, or 18.79%

44) D

*Rs* = .137 + .4(.137 − .074)  
 *Rs* = .1622, or 16.22%

45) D

PVTax shield = .21($224,000)  
 PVTax shield = $47,040

46) C

*R*WACC = [$12,000/($7,000 + 12,000)(.14)] + [$7,000/($7,000 + 12,000)](.07)(1 − .21)  
 *R*WACC = .1088, or 10.88%

47) B

*VL* = [$3,800(1 − .22)]/.154 + .22($2,600)  
 *VL* = $19,819

48) B

*VL* = 22,000($27) + .23($225,000)  
 *VL* = $645,750  
   
 *VE* = $645,750 − 225,000  
 *VE* = $420,750

49) C

*VL* = [$17,100(1 − .21)]/.124 + .21($25,000)  
 *VL* = $114,194

50) C

*VU* = $78,400/.114  
 *VU* = $687,719

51) D

*VL* = [$138,000(1 − .21)/.136] + .21($520,000)  
 *VL* = $910,818

52) C

.126 = .116 + (*B/S*)(.116 − .079)(1 − .23)  
 *B/S* = .35

53) D

*VL* = [$87,200(1 − .21)/.12] + .21($227,000)  
 *VL* = $621,736.67  
   
 *VS* = $621,736.67 − 227,000  
 *VS* = $394,736.67  
   
 *Rs* = .12 + ($227,000/$394,736.67)(1 − .21)(.12 − .07)  
 *Rs* = .1427, or 14.27%

54) E

*VL* = [$1,900(1 − .21)/.103] + .21($4,000)  
 *VL* = $15,412.82  
   
 *VS* = $15,412.82 − 4,000  
 *VS* = 11,412.82  
   
 *RS* = .103 + [($4,000/$11,412.82)(1 − .21)(.103 − .07)]  
 *RS* = .1121, or 11.21%

55) B

*VE* = $14,600 − 5,000  
 *VE* = $9,600  
   
 .1384 = .125 + ($5,000/$9,600)(1 − .25)(.125 − *RB*)  
 *RB* = .0907, or 9.07%

56) B

.1376 = *RU* + .60(1 − .21)(*RU* − .085)  
 *RU* = .1207, or 12.07%

57) E

.1507 = .128 + (*B/S*)(1 − .23)(.128 − .0735)  
 *B/S* = .54

58) C

*RS* = .14 + .60(1 − .23)(.14 − .09)  
 *RS* = .1631, or 16.31%

59) E

Annual tax shield on debt = $450,000(.06)(.21)  
 Annual tax shield on debt = $5,670

60) D

Annual interest tax shield = 2,000($1,000)(.09)(.23)  
 Annual interest tax shield = $41,400

61) C

PVTax shield = .21($12,000)  
 PVTax shield = $2,520

62) D

*R*WACC = [$16,000/($5,000 + 16,000)](.12) + [$5,000/($5,000 + 16,000)](.08)(1 − .21)  
 *R*WACC = .1065, or 10.65%

63) C

*R*s = .138 + (.4/.6)(1 − .21)(.138 − .072)  
 *R*s = .1728, or 17.28%

64) B

.1304 = *R*0 + .64(1 − .25)(*R*0 − .08)  
 *R*0 = .1141, or 11.41%

65) C

*B*/*S* = 1.57 − 1  
 *B*/*S* = .57  
   
 .156 = .14 + .57(1 − .21)(.14 − *RB*)  
 *RB* = .1045, or 10.45%

66) E

Annual interest tax shield = 5,000($1,000)(.0765)(.23)  
 Annual interest tax shield = $87,975

67) B

*VL* = {[$338,000(1 − .22)]/.142} + .22($400,000)  
 *VL* = $1,944,620  
   
 *VE* = $1,944,620 − 400,000  
 *VE* = $1,544,620

68) D

Δ*V* = .21(.3)($648,200) − .35(.3)($648,200)  
 Δ*V* = −$27,224

69) A

Shares repurchased = $177,000/($569,000/22,300)  
 Shares repurchased = 6,937 shares

70) C

EPS = [$71,300(1 − .30) − $71,300(1 − .30)(.35)]/17,400]  
 EPS = $1.86

71) B

EPS = [$90,900(1 + .40) − $90,900(1 + .40)(.35)]/44,300  
 EPS = $1.87

72) D

Shares repurchased = $90,400/($360,000/18,700)  
 Shares repurchased = 4,695.78 shares  
   
 Shares outstanding = 18,700 shares − 4,695.78 shares  
 Shares outstanding = 14,004.22 shares  
   
 EPS = [$17,200 − 90,400(.06)]/14,004.22  
 EPS = $.84

73) A

Shares repurchased = $88,300/($353,000/17,300)  
 Shares repurchased = 4,327.45 shares  
   
 Shares outstanding = 17,300 shares − 4,327.45 shares  
 Shares outstanding = 12,972.55 shares  
   
 EPS = [$38,600 − 88,300(.07)]/12,972.55  
 EPS = $2.50

74) A

Shares repurchased = $140,000/($685,000/45,000)  
 Shares repurchased = 9,197.08 shares  
   
 Shares outstanding = 45,000 − 9,197.08  
 Shares outstanding = 35,802.92 shares  
   
 EPS = [$58,600 − 140,000(.07)]/35,802.92  
 EPS = $1.36

75) A

EBIT/42,500 = [EBIT − $290,000(.08)]/26,000  
 EBIT = $59,758

76) A

Shares repurchased = $76,000/$39  
 Shares repurchased = 1,948.72 shares  
   
 Shares outstanding = 12,400 − 1,948.72  
 Shares outstanding = 10,451.28 shares  
   
 EBIT/12,400 = [EBIT − $76,000(.09)]/10,451.28  
 EBIT = $43,524

77) A

Shares repurchased = $72,000/$24  
 Shares repurchased = 3,000.00 shares  
   
 Shares outstanding = 7,900 − 3,000.00  
 Shares outstanding = 4,900.00 shares  
   
 EBIT/7,900 = [EBIT − $72,000(.06)]/4,900.00  
 EBIT = $11,376  
   
 EPS = $11,376/7,900  
 EPS = $1.44

78) E

$69,000/19,500 = [$69,000 − 147,000(.068)]/X  
 X = 16,675.04 shares

79) B

$84,000/27,000 = [$84,000 − 158,000(.083)]/X  
 X = 22,784.79 shares  
   
 Shares repurchased = 27,000 − 22,784.79  
 Shares repurchased = 4,215.21 shares

80) B

$105,000/19,200 = [$105,000 − 142,000(.068)]/X  
 X = 17,434.33 shares  
   
 Shares repurchased = 19,200 − 17,434.33  
 Shares repurchased = 1,765.67 shares  
   
 Share price = $142,000/1,765.67  
 Share price = $80.42

81) A

$49,200/33,500 = [$49,200 − Debt(.064)]/22,200  
 Debt = $259,310

82) D

$19,200/14,000 = [$19,200 − 77,000(X)]/10,300  
 X = .0659, or 6.59%

83) E

Value per share = $359,000/30,500  
 Value per share = $11.77  
   
 Firm value = 161,500($11.77)  
 Firm value = $1,900,934

84) C

305,000X = 258,000X + $1,820,000  
 X = $38.72

85) E

*RE* = .114 + [(.114 − .066) × .44]  
 *RE* = .1351, or 13.51%

86) E

.138 = (.116 + [(.116 − .069) × D/E]  
 D/E = .47

87) C

.133 = .089 + [(.089 − *RD*) × .79]  
 *RD* = .0333, or 3.33%

88) C

Interest tax shield = .40($26,500)  
 Interest tax shield = $10,600

89) D

Interest tax shield = .34 × 5,250 × $1,000  
 Interest tax shield = $1,785,000

90) B

*VU* = $341,000(1 − .40)/.124  
 *VU* = $1,650,000

91) A

*VU* = $292,000(1 − .35)/.116  
 *VU* = $1,636,207  
   
 *VL* = $1,636,207 + .35($908,000)  
 *VL* = $1,954,007

92) A

*VU* = $195,000(1 − .40)/.139  
 *VU* = $841,727  
   
 *VL* = $841,727 + .40(1.05)($841,727)  
 *VL* = $1,195,252

93) E

WACC = .143(1/2.11) + .057(1.11/2.11)  
 WACC = .0978, or 9.78%

94) Homemade leverage is the ability of investors to alter their own financial leverage to achieve a desired capital structure no matter what a firm’s capital structure might be. If investors can, at their discretion, use homemade leverage to create additional leverage or to undo any existing leverage of the firm then the actual capital structure decision of the firm itself becomes irrelevant.

95) In a world without taxes, the cost of equity increases as the debt-equity ratio increases. This increase in equity cost is just sufficient to offset the increased risk, allowing WACC to remain constant. This is MM Proposition II with no corporate taxes.

96) MM I and II without taxes:  
   
 Assumptions:  
 ● No taxes  
 ● No transaction costs  
 ● Individuals and corporations borrow at same rate  
 Results: ● Proposition I: *VL* = *VU*  
 ● Proposition II: *RS* = *R*0 + (*B/S*)(*R*0 − *RB*)  
 Intuition: ● Proposition I: Through homemade leverage individuals can either duplicate or undo the effects of corporate leverage.  
 ● Proposition II: The cost of equity rises with leverage because the risk to equity rises with leverage.

97) This question requires students to differentiate between the cost of equity and the WACC. The firm trades off higher equity costs for a lower WACC via both the lower pretax cost of debt and the tax shield on debt. Thus, even though the cost of equity rises, the overall cost of capital (which is used as the discount rate when computing the PV of the firm’s cash flows) declines and thus the value of the firm rises.

98) Under either MM scenario, the financial manager should invest no time in analyzing the firm’s capital structure. With no taxes, capital structure is irrelevant. With taxes, MM says a firm will maximize its value by using 100 percent debt. In both cases, the manager has nothing to decide.

99) MM Proposition I and II with taxes:  
   
 Assumptions:  
 ● Corporations are taxed at the rate *TC*, on earnings after interest.  
 ● No transaction costs  
 ● Individuals and corporations borrow at same rate.  
 Results: ● Proposition I: *VL* = *VU* + *TCB*  
 ● Proposition II: *RS* = *R*0 + (*B*/*S*)(1 − *TC*)(*R*0 − *RB*)  
 Intuition: ● Proposition I: Because corporations can deduct interest payments but not dividend payments, corporate leverage lowers tax payments, thereby increasing firm value.  
 ● Proposition II: The cost of equity rises with leverage because the risk to equity rises with leverage.