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

**MULTIPLE CHOICE - Choose the one alternative that best completes the statement or answers the question.  
1)** To determine the appropriate cost of capital to employ when computing the present value of a project, an analyst should use the rate that is earned on:

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

A) the overall market portfolio.   
 B) the sponsoring firm’s return on assets.  
 C) a financial asset of comparable risk.  
 D) a riskless asset with a similar life span.  
 E) the sponsoring firm’s return on equity.

**2)** When using the CAPM to estimate the cost of equity capital, the expected excess market return equals the:

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

A) return on the stock minus the risk-free rate.   
 B) return on the market minus the risk-free rate.  
 C) beta times the market risk premium.  
 D) beta times the risk-free rate.  
 E) market rate of return.

**3)** If a firm issues new stock to fund a project, the firm should expect the issuance to:

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

A) have no effect on the previous shareholders.   
 B) create costless benefits for the firm.  
 C) cause any potential gains to the firm from the project to be lost.  
 D) affect future dividends but not the appreciation realized by previous shareholders.  
 E) dilute the capital gains that would have been earned by the previous shareholders.

**4)** An all-equity firm is evaluating a capital project that has the same level of risk as the firm. The project should be accepted if its:

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

A) internal rate of return exceeds the firm’s cost of equity capital.   
 B) expected rate of return exceeds the market rate of return.  
 C) anticipated rate of return exceeds the firm’s return on assets.  
 D) internal rate of return is positive given this level of risk.  
 E) expected rate of return exceeds the risk-free rate.

**5)** With respect to the CAPM, which one of the following statements is correct?

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

A) The CAPM is the only available method for determining an appropriate discount rate for a proposed project.   
 B) The market rate of return is most commonly based on the forecasted return on the market for the next 5-year period.  
 C) CAPM is used quite frequently by firms in their capital budgeting processes.  
 D) The expected return on the 30-year U.S. Treasury bond is the most commonly used as the risk-free rate of return.  
 E) An increase in the risk-free rate combined with a beta greater than 1.0 increases the discount rate computed using the CAPM.

**6)** When estimating the cost of equity using the DDM, the factor that is the most apt to add error to this estimate is the:

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

A) value of the last dividend.   
 B) firm’s tax rate.  
 C) historical beta.  
 D) dividend growth rate.  
 E) current stock price.

**7)** With respect to beta, which one of the following statements is correct?

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

A) Firm betas have less error than industry betas.   
 B) Firms should always rely on their own beta rather than their industry’s beta.  
 C) Beta is unaffected by a firm’s capital structure.  
 D) The sample size used to compute beta may be too small to yield a reliable result.  
 E) Firm betas rarely vary over time.

**8)** The beta of a security is calculated as: (\_\_\_\_\_ of a security’s return with the return on the market portfolio/\_\_\_\_\_\_\_).

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

A) Variance; Covariance of the market return   
 B) Covariance; Variance of the market return  
 C) Covariance; Standard deviation of the market return  
 D) Variance; Covariance of the security return  
 E) Covariance; Variance of the security return

**9)** Assume you plotted the monthly returns for both a stock and the S&P 500. Using regression analysis, the straight line through these points that is developed by the analysis is referred to as the \_\_\_\_\_\_ which has a slope of \_\_\_\_\_ and an intercept of \_\_\_\_\_\_.

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

A) security market line; alpha; gamma   
 B) characteristic line; beta; alpha  
 C) characteristic line; alpha; beta  
 D) security market line; beta; gamma  
 E) characteristic line; gamma; alpha

**10)** Companies will generally have a \_\_\_\_ beta if their:

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

A) low; stock price is relatively low.   
 B) high; sales are highly dependent on the market cycle.  
 C) high; sales are growing at a steady rate of increase.  
 D) high; sales are high compared to other firms in their industry.  
 E) low; production costs are primarily fixed in nature.

**11)** Assume a firm increases its use of both operating leverage and financial leverage. Accordingly, an analyst should expect the firm’s:

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

A) asset beta to exceed its equity beta.   
 B) beta of debt to exceed 1.0.  
 C) beta to remain constant as the increased operating leverage will offset the increased financial leverage.  
 D) equity beta to increase.  
 E) debt beta to exceed its equity beta.

**12)** The beta of debt is commonly considered to be:

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

A) equal to the market beta.   
 B) one-half of the equity beta.  
 C) equal to the asset beta.  
 D) zero.  
 E) one.

**13)** If two firms are equivalent in all other respects, an analyst should expect the beta of the levered firm’s common stock to be \_\_\_\_\_ the beta of the unlevered firm’s the common stock.

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

A) roughly equivalent to   
 B) significantly less than  
 C) slightly less than  
 D) greater than  
 E) equal to

**14)** The beta of a firm is most likely to be high under which of the following conditions?

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

A) High cyclical business activity and low operating leverage   
 B) High cyclical business activity and high operating leverage  
 C) Low cyclical business activity and low financial leverage  
 D) Low cyclical business activity and low operating leverage  
 E) Low financial leverage and low operating leverage

**15)** A firm with cyclical earnings is characterized by:

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

A) revenue patterns that vary with the business cycle.   
 B) high levels of debt in its capital structure.  
 C) high fixed costs.  
 D) high costs per unit.  
 E) low contribution margins.

**16)** A firm with high operating leverage has:

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

A) low fixed costs in its production process.   
 B) high variable costs in its production process.  
 C) high fixed costs in its production process.  
 D) high total costs per unit.  
 E) low total costs per unit.

**17)** Wyatt Materials is equivalent to other firms in its industry in all ways but one: Wyatt has much lower fixed costs than its peers. Accordingly, an analyst should expect Wyatt to have:

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

A) a lower beta than its industry.   
 B) the same beta as the industry but a lower beta than the other firms in the industry.  
 C) a higher beta than its industry.  
 D) a higher beta than the industry and all the firms within that industry.  
 E) the same beta as the industry but a higher beta than the other firms in the industry.

**18)** The use of leverage:

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

A) increases both the asset and the equity betas.   
 B) decreases both the asset and the equity betas.  
 C) decreases the equity beta and increases the asset beta.  
 D) increases the equity beta but does not affect the asset beta.  
 E) decreases the equity beta but does not affect the asset beta.

**19)** An industry is likely to have a low beta if the:

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

A) stream of revenues within that industry is less volatile than the market.   
 B) economy is in a recessionary period.  
 C) market for its goods is highly affected by the market cycle.  
 D) number of firms within the industry is fairly constant.  
 E) industry tends to use a lot of debt financing.

**20)** For a levered firm the equity beta is \_\_\_\_\_ the asset beta.

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

A) greater than   
 B) less than  
 C) equal to  
 D) sometimes greater than and sometimes less than  
 E) unrelated to

**21)** The CAPM has an advantage over the DDM because the CAPM:

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

A) explicitly adjusts for risk.   
 B) applies to firms that pay dividends.  
 C) has no measurement risk.  
 D) specifically considers a firm’s rate of growth.  
 E) ignores changes in the overall market over time.

**22)** Which one of the following options is a correct means of calculating an expected rate of growth?

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

A) ROA × Dividend payout ratio   
 B) ROE × Profit margin  
 C) ROA × Retention ratio  
 D) ROA × Profit margin  
 E) ROE × Retention ratio

**23)** Yu and De Leon is evaluating a project that has a different level of risk than the overall firm. This project should be evaluated:

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

A) using the market beta.   
 B) using the overall firm’s beta.  
 C) using a beta commensurate with the project’s risks.  
 D) at the market rate of return.  
 E) at the T-bill rate of return.

**24)** The discount rate applied to an individual project should be based on the:

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

A) sources of funding for that project.   
 B) risks associated with the project’s cash flows.  
 C) sponsoring firm’s average level of risk.  
 D) expertise of the project’s managers.  
 E) size and duration of the project’s life.

**25)** If a firm applies its overall firm beta to projects with varying levels of risk, the firm will tend to:

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

A) reject the riskiest projects.   
 B) accept all low-risk projects.  
 C) accept only projects of equal risk to its current operations.  
 D) remain at its current level of overall risk.  
 E) become riskier over time.

**26)** Tedjo, Incorporated, is considering a project that is markedly different from its current operations. An analyst at Tedjo has located the beta of a firm that is a good example of a pure play for this new project. Although it is a good fit, why might Tedjo assign a higher beta to the project than the beta of the pure play?

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

A) Tedjo should assign a project beta that is based on the average of Tedjo and the pure play firm’s betas.   
 B) The expected project revenues may be less cyclical than those of the pure play firm.  
 C) Tedjo may use less debt in its operations than does the pure play firm.  
 D) The pure play firm has more experience in the new area than Tedjo does.  
 E) The project may incur flotation costs so a higher beta is warranted to offset the additional cost.

**27)** The cost of preferred stock:

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

A) should be adjusted for taxes when computing WACC.   
 B) is ignored by all firms when computing WACC.  
 C) is generally calculated using the overall firm’s beta.  
 D) is equal to the stock’s dividend yield.  
 E) is set equal to the pretax cost of debt since it is a fixed income security.

**28)** Baumgartner’s already has debt outstanding but will issue new debt in order to expand. The best estimate of the pretax cost of the new debt is the \_\_\_\_\_ of the already outstanding debt.

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

A) original yield to maturity   
 B) current yield to maturity  
 C) embedded cost  
 D) current yield  
 E) coupon rate

**29)** As of 2018, U.S. tax law limits the tax deduction for interest payments to 30 percent of:

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

A) EBIT.   
 B) EBT.  
 C) net income.  
 D) net revenue.  
 E) the total interest paid.

**30)** When computing WACC, an analyst should use the:

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

A) pretax cost of debt because most corporations pay taxes at the same tax rate.   
 B) pretax cost of debt because it is the actual rate the firm is paying its bondholders.  
 C) current yield because it is based on the current market price of debt.  
 D) aftertax cost of debt because interest is partially, if not fully, tax deductible.  
 E) pretax yield to maturity because it considers the current market price of debt.

**31)** When computing the weighted average cost of capital, which of the following items must be adjusted for taxes?

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

A) Cost of equity   
 B) Cost of preferred stock  
 C) Both the cost of equity and the cost of preferred stock  
 D) The costs of debt and preferred stock  
 E) Cost of debt

**32)** All else held constant, which one of the following actions is most likely to increase the WACC of a levered firm?

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

A) An increase in the weight of debt   
 B) A decrease in a firm’s equity beta  
 C) A decrease in the dividend growth rate  
 D) A decrease in the tax rate  
 E) An increase in the risk-free rate when the equity beta exceeds 1.0

**33)** The weighted average cost of capital for a firm is the:

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

A) discount rate that the firm should apply to all the projects it undertakes.   
 B) overall rate that the firm must earn on its existing assets to maintain the value of its stock.  
 C) rate the firm should expect to pay on its next bond issue.  
 D) maximum rate that the firm should require on any projects it undertakes.  
 E) rate of return that the firm’s preferred stockholders should expect to earn over the long term.

**34)** A firm’s WACC can be correctly used to discount the expected future cash flows of a new project when that project will:

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

A) have the same level of risk as the firm’s current operations.   
 B) be financed solely with new debt and internal equity.  
 C) be managed by the firm’s current managers.  
 D) be financed based on the firm’s current debt-equity ratio.  
 E) be financed solely with internal equity.

**35)** When valuing a firm financed with debt and equity, the individual cash flows should be discounted using:

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

A) the market rate of return.   
 B) the average of the DDM and CAPM costs of equity.  
 C) (1 + WACC)*T*.  
 D) (1 + CAPM)*T*.  
 E) (*r* − *g*).

**36)** The terminal value of a firm is also commonly referred to as the:

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

A) final value.   
 B) cash value.  
 C) non-constant value.  
 D) estimated value.  
 E) horizon value.

**37)** A firm’s net cash flow is calculated as:

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

A) EBIT − Taxes + Depreciation − Capital spending − Increases in net working capital.   
 B) EBIT + Taxes + Depreciation − Capital spending − Increases in net working capital.  
 C) EBIT − Taxes − Depreciation − Capital spending + Increases in net working capital.  
 D) EBIT − Taxes + Depreciation + Capital spending − Increases in net working capital.  
 E) EBIT + Taxes + Depreciation − Capital spending + Increases in net working capital.

**38)** Assume a levered firm will raise new capital to fund a project. To account for the flotation costs appropriately, the firm should:

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

A) subtract the pretax flotation cost from the project’s NPV.   
 B) deduct the amount of the flotation cost from the cash flows for Year 1 of the project.  
 C) add the percentage of the flotation cost to the WACC when discounting the cash flows.  
 D) divide the amount of project capital needed by (1 − weighted average flotation cost).  
 E) increase the target weights of both debt and equity to account for the flotation percentage.

**39)** When calculating the weighted average flotation cost, the weights should be based on the:

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

A) mix of debt and equity that will be used to finance the specific project.   
 B) firm’s target capital structure.  
 C) percentages of internal and external financing that will be used for the project.  
 D) firm’s current mix of debt and equity.  
 E) average amounts of external capital raised during the past twelve months.

**40)** The flotation cost of internal equity is:

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

A) assumed to be zero.   
 B) assumed to be the same as the cost of external equity.  
 C) assigned a cost equal to the aftertax cost of equity.  
 D) assumed to be the same as the firm’s return on equity.  
 E) assigned a cost equal to the risk-free rate.

**41)** Quintero Logistics is an all-equity firm. The beta is 1.16, the expected market return is 10.7 percent, and the risk-free rate is 1.6 percent. What is the expected rate of return on Quintero’s stock?

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

A) 2.66%   
 B) 10.70%  
 C) 12.16%  
 D) 11.14%  
 E) 9.44%

**42)** What is the cost of equity for a firm that has a beta of 1.22 if the risk-free rate of return is 1.4 percent and the expected market return is 6.6 percent?

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

A) 6.60%   
 B) 7.74%  
 C) 8.27%  
 D) 7.60%  
 E) 2.03%

**43)** Lancaster recently paid its annual dividend of $4.20 per share. At that time, the firm announced that all future dividends will be increased by 5.5 percent annually. What is the firm’s cost of equity if the stock is currently selling for $51.75 per share?

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

A) 13.62%   
 B) 8.11%  
 C) 8.55%  
 D) 14.06%  
 E) 4.95%

**44)** West Corporation is expected to pay an annual dividend of $1.50 per share one year from now with future increases of 7.5 percent annually. The stock currently sells for $53.25 per share. What is the cost of equity?

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

A) 10.32%   
 B) 12.38%  
 C) 10.53%  
 D) 13.02%  
 E) 12.81%

**45)** The cost of equity for Chang Corporation is 8.4 percent and the debt-equity ratio is .6. The expected return on the market is 10.4 percent and the risk-free rate is 3.8 percent. Using the common assumption for the debt beta, what is the asset beta?

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

A) .70   
 B) .44  
 C) .62  
 D) .67  
 E) .59

**46)** Clark, Incorporated has an asset beta of .57, the risk-free rate is 4.3 percent, and the market risk premium is 7.7 percent. What is the equity beta if the firm has a debt-equity ratio of .56?

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

A) .46   
 B) .89  
 C) .74  
 D) .37  
 E) .32

**47)** Dylan & Lee is an all-equity firm with a beta of .88. What will the firm’s equity beta be if the firm switches to a debt-equity ratio of .23?

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

A) .80   
 B) 1.23  
 C) .20  
 D) 1.19  
 E) 1.08

**48)** A firm has an equity beta of 1.2, the risk-free rate is 3.4 percent, the market return is 15.7 percent, and the pretax cost of debt is 9.4 percent. The debt-equity ratio is .47. If you apply the common beta assumptions, what is the firm’s asset beta?

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

A) .82   
 B) .61  
 C) .67  
 D) .58  
 E) .73

**49)** The cost of equity of Caro Corporation is 9.4 percent, the expected return on the market is 13.6 percent, and the risk-free rate is 3.8 percent. What is the firm’s debt-equity ratio if its asset beta is .36? Assume there is no preferred stock.

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

A) .52   
 B) .59  
 C) .82  
 D) .77  
 E) .63

**50)** Regan Transport stock is selling for $42.39 per share, has an ROE of 14.3 percent, and a dividend payout ratio of 35 percent. The next expected dividend is $1.62 per share. What is the cost of equity for this firm?

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

A) 12.86%   
 B) 13.12%  
 C) 13.47%  
 D) 12.52%  
 E) 13.70%

**51)** Arnel and Company just paid its annual dividend of $1.48 per share. Analysts expect the stock price to increase by 2.1 percent annually and value the stock at $14.65 per share currently. What is the cost of equity for this firm?

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

A) 12.41%   
 B) 13.32%  
 C) 12.20%  
 D) 13.87%  
 E) 14.06%

**52)** Lavan Systems is an all-equity firm with a beta of 1.32. The firm is considering a new project that entails less risk than its current operations and thus management feels that the firm’s beta should be lowered by .18 when assigning a discount rate to this project. The market rate of return is 9.4 percent and the risk-free rate is 2.8 percent. What discount rate should be assigned to this project?

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

A) 11.46%   
 B) 11.21%  
 C) 10.87%  
 D) 6.49%  
 E) 10.32%

**53)** Alpha, Incorporated, has an overall cost of capital of 11.6 percent and a beta of 1.31. The firm is contemplating a new project that is unrelated to the firm’s current operations. Omega Corporation is a firm that operates similarly to the new project and Omega has a cost of capital of 10.7 percent. Alpha knows that it will be less efficient than Omega and thus feels that an adjustment of +1 percentage point should be added to the project’s discount rate to allow for this inefficiency. What discount rate should be assigned to the new project?

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

A) 10.7%   
 B) 11.3%  
 C) 11.7%  
 D) 11.6%  
 E) 12.6%

**54)** Monitor pays an annual dividend of $3.80 on its preferred stock. What is the cost of preferred if the stock currently sells for $42.70 per share and the tax rate is 21 percent?

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

A) 7.94%   
 B) 11.87%  
 C) 6.68%  
 D) 9.39%  
 E) 8.90%

**55)** Counterweight Company has debt outstanding with a coupon rate of 4.5 percent and a yield to maturity of 7.5 percent. What is the aftertax cost of debt if the tax rate is 22 percent? Assume all interest is tax deductible.

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

A) 7.02%   
 B) 3.51%  
 C) 5.85%  
 D) 2.93%  
 E) 11.70%

**56)** Tiara Events has an aftertax cost of debt of 5.1 percent at its current tax rate of 34 percent. What will its aftertax cost of debt be if the tax rate drops to 21 percent? Assume all interest is tax deductible.

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

A) 6.10%   
 B) 5.92%  
 C) 6.17%  
 D) 4.03%  
 E) 4.47%

**57)** Harvey Machinery has 80 bonds outstanding that are selling at their par value of $1,000 each. Bonds with similar characteristics are yielding a pretax 8.6 percent. The firm also has 4,000 shares of common stock outstanding. The stock has a beta of 1.1 and sells for $40 per share. The U.S. T-bill is yielding 4 percent, the market risk premium is 8 percent, and the firm’s tax rate is 21 percent. What is the firm’s weighted average cost of capital assuming its earnings are sufficient to classify all interest as a tax-deductible expense?

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

A) 10.10%   
 B) 11.39%  
 C) 10.80%  
 D) 10.65%  
 E) 11.40%

**58)** Zachary Confections has a yield to maturity on its debt of 7.8 percent, a cost of equity of 12.4 percent, and a cost of preferred stock of 8 percent. The firm has 105 shares of common stock outstanding at a market price of $22 per share. There are 25 shares of preferred stock outstanding at a market price of $45 per share. The bond issue has a total face value of $1,500 and sells at 98 percent of face value. If the tax rate is 21 percent, what is the weighted average cost of capital assuming all interest is tax deductible?

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

A) 9.68%   
 B) 8.54%  
 C) 8.69%  
 D) 9.52%  
 E) 9.45%

**59)** Jahzeel’s wants to have a weighted average cost of capital of 9.5 percent. The firm has an aftertax cost of debt of 6.5 percent and a cost of equity of 12.75 percent. What debt-equity ratio is needed for the firm to achieve its targeted weighted average cost of capital?

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

A) .84   
 B) .92  
 C) 1.08  
 D) .76  
 E) .67

**60)** Brick and Mortar has 200 shares of common stock outstanding at a market price of $37 per share. The firm recently paid an annual dividend in the amount of $1.20 per share and has a dividend growth rate of 4 percent. The firm also has 5 bonds outstanding with a face value of $1,000 per bond that are selling at 99 percent of par. The bonds have a coupon rate of 6 percent and a yield to maturity of 6.7 percent. All interest is tax deductible. If the tax rate is 21 percent, what is the weighted average cost of capital?

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

A) 5.93%   
 B) 6.87%  
 C) 6.37%  
 D) 6.54%  
 E) 7.08%

**61)** The common stock of Plank Communications has a beta of 1.37, the risk-free rate is 3.4 percent, and the market risk premium is 8.2 percent. The yield to maturity on the firm’s bonds is 7.6 percent and the debt-equity ratio is .45. What is the WACC if the tax rate is 23 percent and all interest is tax deductible?

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

A) 14.07%   
 B) 10.94%  
 C) 12.60%  
 D) 10.59%  
 E) 11.91%

**62)** Edelman’s net cash flows for the next three years are projected at $72,000, $78,000, and $84,000, respectively. After that, the cash flows are expected to increase by 3.2 percent annually. The aftertax cost of debt is 6.2 percent and the cost of equity is 11.4 percent. What is the value of the firm if it is financed with 40 percent debt and 60 percent equity?

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

A) $1,215,650   
 B) $1,328,141  
 C) $1,461,439  
 D) $1,575,941  
 E) $1,279,623

**63)** The expected net cash flows of Vincent Homes for the next three years are $42,000, $49,000, and $64,000, respectively. After three years, the growth rate of the cash flows will be a constant 2 percent annually. The WACC is 8 percent. What is the present value of the terminal value?

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

A) $881,822   
 B) $863,689  
 C) $959,259  
 D) $910,444  
 E) $828,406

**64)** Skyler Audio has developed an improved version of its most popular product. To get this improvement to the market will cost $48 million but the project will return an additional $13.5 million for 5 years in net cash flows. The firm’s debt-equity ratio is .25, the cost of equity is 13 percent, the pretax cost of debt is 9 percent, and the tax rate is 21 percent. All interest is tax deductible. What is the net present value of this proposed project?

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

A) $906,411   
 B) $902,459  
 C) $879,838  
 D) $884,318  
 E) $889,760

**65)** Zander Systems has 25,000 shares of common stock outstanding with a beta of 1.4, a market price of $32 per share, and a dividend yield of 5.7 percent. Dividends increase by 4.2 percent annually. The firm also has $450,000 of debt outstanding that is selling at 102 percent of par that has a yield to maturity of 6.8 percent. The tax rate is 21 percent and all interest is tax deductible. The firm is considering a project that has the same risk level as the firm’s current operations, an initial cost of $328,000, and cash inflows of $52,500, $155,000, and $225,000 for Years 1 to 3, respectively. What is the NPV of the project?

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

A) $28,515   
 B) $31,492  
 C) $36,511  
 D) $27,006  
 E) $30,157

**66)** Alpha Corporation is considering acquiring Omega, Incorporated, and has compiled the following information about Omega:

|  |  |  |  |
| --- | --- | --- | --- |
| **Year** | **1** | **2** | **3** |
| **EBIT** | $ 318,000 | $ 364,000 | $ 392,000 |
| **Capital spending** | 46,500 | 28,000 | 36,200 |
| **Increases in net working capital** | 5,500 | 6,500 | 1,200 |
| **Depreciation** | 34,000 | 32,100 | 28,700 |

The applicable tax rate is 21 percent and the terminal value of Omega as of Year 3 is $2.5 million. What is the NPV of this acquisition if the discount rate is 7.1 percent and the acquisition cost is $2.25 million?

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

A) $538,316   
 B) $509,482  
 C) $499,003  
 D) $506,048  
 E) $496,399

**67)** Andrews has a current debt-equity ratio of .52 and a target debt-equity ratio of .45. The cost of floating equity is 9.5 percent and the flotation cost of debt is 6.6 percent. What should the firm use as its weighted average flotation cost?

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

A) 8.01%   
 B) 8.51%  
 C) 8.33%  
 D) 7.76%  
 E) 8.60%

**68)** Jillian Retail can issue equity at a flotation cost of 8.76 percent and debt at 5.93 percent. The firm currently has a debt-equity ratio of .37 but prefers a ratio of .35. What should this firm use as its weighted average flotation cost?

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

A) 8.26%   
 B) 8.03%  
 C) 8.34%  
 D) 8.37%  
 E) 8.00%

**69)** Judy's Boutique just paid an annual dividend of $2.83 on its common stock. The firm increases its dividend by 3.55 percent annually. What is the company's cost of equity if the current stock price is $40.36 per share?

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

A) 10.27%   
 B) 10.81%  
 C) 11.20%  
 D) 10.56%  
 E) 9.98%

**70)** Countess Corporation is expected to pay an annual dividend of $4.39 on its common stock in one year. The current stock price is $72.03 per share. The company announced that it will increase its dividend by 3.55 percent annually. What is the company's cost of equity?

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

A) 10.23%   
 B) 9.64%  
 C) 9.38%  
 D) 9.11%  
 E) 9.86%

**71)** The stock in Bowie Enterprises has a beta of .86. The expected return on the market is 11.60 percent and the risk-free rate is 2.87 percent. What is the required return on the company's stock?

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

A) 12.85%   
 B) 11.61%  
 C) 9.80%  
 D) 10.09%  
 E) 10.38%

**72)** Smathers Corporation stock has a beta of 1.10. The market risk premium is 7.70 percent and the risk-free rate is 3.21 percent annually. What is the company's cost of equity?

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

A) 9.91%   
 B) 11.68%  
 C) 8.15%  
 D) 7.92%  
 E) 7.70%

**73)** Rossdale Company stock currently sells for $72.87 per share and has a beta of 1.22. The market risk premium is 7.10 percent and the risk-free rate is 2.90 percent annually. The company just paid a dividend of $4.29 per share, which it has pledged to increase at an annual rate of 3.45 percent indefinitely. What is your best estimate of the company's cost of equity?

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

A) 8.02%   
 B) 9.69%  
 C) 10.55%  
 D) 9.29%  
 E) 11.36%

**74)** Bethesda Water has an issue of preferred stock outstanding with a coupon rate of 5.10 percent that sells for $93.74 per share. If the par value is $100, what is the cost of the company's preferred stock?

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

A) 5.16%   
 B) 5.10%  
 C) 5.21%  
 D) 5.44%  
 E) 5.89%

**75)** Too Young, Incorporated, has a bond outstanding with a coupon rate of 6.3 percent and semiannual payments. The bond currently sells for $944 and matures in 20 years. The par value is $1,000. What is the company's pretax cost of debt?

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

A) 6.90%   
 B) 7.10%  
 C) 3.35%  
 D) 6.82%  
 E) 7.34%

**76)** Galvatron Metals has a bond outstanding with a coupon rate of 6.1 percent and semiannual payments. The bond currently sells for $947 and matures in 23 years. The par value is $1,000 and the company's tax rate is 40 percent. What is the company's aftertax cost of debt?

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

A) 3.93%   
 B) 3.63%  
 C) 4.16%  
 D) 3.06%  
 E) 3.27%

**77)** Mojo Mining has a bond outstanding that sells for $1,052 and matures in 22 years. The bond pays semiannual coupons and has a coupon rate of 5.86 percent. The par value is $1,000. If the company's tax rate is 39 percent, what is the aftertax cost of debt?

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

A) 3.33%   
 B) 3.12%  
 C) 3.58%  
 D) 5.17%  
 E) 5.54%

**78)** Great Lakes Packing has two bond issues outstanding. The first issue has a coupon rate of 3.84 percent, a par value of $2,000 per bond, matures in 7 years, has a total face value of $5.3 million, and is quoted at 102 percent of face value. The second issue has a coupon rate of 6.61 percent, a par value of $1,000 per bond, matures in 16 years, has a total face value of $9.6 million, and is quoted at 105 percent of face value. Both bonds pay interest semiannually. The company's tax rate is 39 percent. What is the firm's weighted average aftertax cost of debt?

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

A) 2.94%   
 B) 5.21%  
 C) 3.18%  
 D) 3.06%  
 E) 4.19%

**79)** Kim's Bridal Shoppe has 11,600 shares of common stock outstanding at a price of $50 per share. It also has 285 shares of preferred stock outstanding at a price of $92 per share. There are 320 bonds outstanding that have a coupon rate of 6.9 percent paid semiannually. The bonds mature in 31 years, have a face value of $2,000, and sell at 109 percent of par. What is the capital structure weight of the common stock?

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

A) .4864   
 B) .4448  
 C) .3989  
 D) .5350  
 E) .4654

**80)** Further From Center has 12,000 shares of common stock outstanding at a price of $54 per share. It also has 305 shares of preferred stock outstanding at a price of $92 per share. There are 360 bonds outstanding that have a coupon rate of 7.3 percent paid semiannually. The bonds mature in 35 years, have a face value of $2,000, and sell at 111 percent of par. What is the capital structure weight of the preferred stock?

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

A) .0190   
 B) .0957  
 C) .5417  
 D) .4392  
 E) .0643

**81)** Here I Sit Sofas has 7,100 shares of common stock outstanding at a price of $94 per share. There are 600 bonds that mature in 30 years with a coupon rate of 6.8 percent paid semiannually. The bonds have a par value of $2,000 each and sell at 108.5 percent of par. The company also has 6,000 shares of preferred stock outstanding at a price of $47 per share. What is the capital structure weight of the debt?

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

A) .6550   
 B) .5783  
 C) .2964  
 D) .6236  
 E) .7036

**82)** Saint Nick Enterprises has 18,900 shares of common stock outstanding at a price of $76 per share. The company has two bond issues outstanding. The first issue has 8 years to maturity, a par value of $2,000 per bond, and sells for 95 percent of par. The second issue matures in 22 years, has a par value of $1,000 per bond, and sells for 97 percent of par. The total face value of the first issue is $320,000, while the total face value of the second issue is $420,000. What is the capital structure weight of debt?

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

A) .3765   
 B) .3034  
 C) .3312  
 D) .4030  
 E) .1897

**83)** Bermuda Cruises issues only common stock and coupon bonds. The firm has a debt equity ratio of 1.41. The cost of equity is 13.5 percent and the pretax cost of debt is 7.6 percent. What is the capital structure weight of the firm's equity if the firm's tax rate is 40 percent?

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

A) .4602   
 B) .5851  
 C) .3871  
 D) .4867  
 E) .4149

**84)** The Two Dollar Store has a cost of equity of 10.5 percent, the YTM on the company's bonds is 5.1 percent, and the tax rate is 35 percent. If the company's debt–equity ratio is .40, what is the weighted average cost of capital?

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

A) 9.01%   
 B) 7.34%  
 C) 5.37%  
 D) 8.01%  
 E) 8.45%

**85)** Wentworth's Five and Dime Store has a cost of equity of 12.8 percent. The company has an aftertax cost of debt of 4.3 percent, and the tax rate is 35 percent. If the company's debt–equity ratio is .88, what is the weighted average cost of capital?

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

A) 8.82%   
 B) 7.48%  
 C) 8.12%  
 D) 7.51%  
 E) 6.89%

**86)** Kountry Kitchen has a cost of equity of 11.3 percent, a pretax cost of debt of 5.9 percent, and the tax rate is 40 percent. If the company's WACC is 8.80 percent, what is its debt–equity ratio?

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

A) 2.10   
 B) .32  
 C) .48  
 D) .61  
 E) 1.45

**87)** Take It All Away has a cost of equity of 10.51 percent, a pretax cost of debt of 5.25 percent, and a tax rate of 40 percent. The company's capital structure consists of 67 percent debt on a book value basis, but debt is 27 percent of the company's value on a market value basis. What is the company's WACC?

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

A) 7.32%   
 B) 12.20%  
 C) 9.70%  
 D) 8.52%  
 E) 9.09%

**88)** Upton Umbrellas has a cost of equity of 10.9 percent, the YTM on the company's bonds is 5.5 percent, and the tax rate is 39 percent. The company's bonds sell for 92.9 percent of par. The debt has a book value of $387,000 and total assets have a book value of $945,000. If the market-to-book ratio is 2.53 times, what is the company's WACC?

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

A) 4.89%   
 B) 7.94%  
 C) 9.37%  
 D) 9.12%  
 E) 7.71%

**89)** Skolits Corporation has a cost of equity of 10.7 percent and an aftertax cost of debt of 4.11 percent. The company's balance sheet lists long-term debt of $285,000 and equity of $545,000. The company's bonds sell for 94.5 percent of par and market-to-book ratio is 2.47 times. If the company's tax rate is 40 percent, what is the WACC?

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

A) 9.60%   
 B) 10.20%  
 C) 8.44%  
 D) 8.88%  
 E) 9.33%

**90)** Western Electric has 28,500 shares of common stock outstanding at a price per share of $72 and a rate of return of 13.35 percent. The firm has 6,950 shares of 7.10 percent preferred stock outstanding at a price of $91.50 per share. The preferred stock has a par value of $100. The outstanding debt has a total face value of $383,000 and currently sells for 107.5 percent of face. The yield to maturity on the debt is 7.87 percent. What is the firm's weighted average cost of capital if the tax rate is 40 percent?

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

A) 11.48%   
 B) 10.25%  
 C) 10.68%  
 D) 11.06%  
 E) 10.48%

**91)** Charlotte's Crochet Shoppe has 10,700 shares of common stock outstanding at a price per share of $63 and a rate of return of 11.13 percent. The company also has 320 bonds outstanding, with a par value of $1,000 per bond. The pretax cost of debt is 5.89 percent and the bonds sell for 93.6 percent of par. What is the firm's WACC if the tax rate is 40 percent?

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

A) 8.49%   
 B) 9.93%  
 C) 8.33%  
 D) 9.52%  
 E) 8.79%

**92)** Piedmont Hotels is an all-equity company. Its stock has a beta of 1.23. The market risk premium is 6.9 percent and the risk-free rate is 2.7 percent. The company is considering a project that it considers riskier than its current operations so it wants to apply an adjustment of 1.9 percent to the project's discount rate. What should the firm set as the required rate of return for the project?

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

A) 13.09%   
 B) 11.19%  
 C) 9.77%  
 D) 7.87%  
 E) 9.29%

**93)** The required return on the stock of Moe's Pizza is 10.4 percent and aftertax required return on the company's debt is 3.28 percent. The company's market value capital structure consists of 65 percent equity. The company is considering a new project that is less risky than current operations and it feels the risk adjustment factor is minus 1.5 percent. The tax rate is 35 percent. What is the required return for the new project?

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

A) 6.01%   
 B) 9.01%  
 C) 7.91%  
 D) 6.41%  
 E) 9.41%

**94)** Alpha Industries is considering a project with an initial cost of $7.9 million. The project will produce cash inflows of $1.87 million per year for 6 years. The project has the same risk as the firm. The firm has a pretax cost of debt of 5.43 percent and a cost of equity of 11.15 percent. The debt–equity ratio is .65 and the tax rate is 35 percent. What is the net present value of the project?

94) \_\_\_\_\_\_

A) $734,357   
 B) $706,112  
 C) $635,501  
 D) $514,575  
 E) $605,239

**95)** Dyrdek Enterprises has equity with a market value of $10.3 million and the market value of debt is $3.40 million. The company is evaluating a new project that has more risk than the firm. As a result, the company will apply a risk adjustment factor of 1.1 percent. The new project will cost $2.10 million today and provide annual cash flows of $551,000 for the next 6 years. The company's cost of equity is 10.87 percent and the pretax cost of debt is 4.83 percent. The tax rate is 35 percent. What is the project's NPV?

95) \_\_\_\_\_\_

A) $296,133   
 B) $375,321  
 C) $458,724  
 D) $239,782  
 E) $266,983

**96)** Based on market values, Gubler's Gym has an equity multiplier of 1.54 times. Shareholders require a return of 11.23 percent on the company's stock and a pretax return of 4.92 percent on the company's debt. The company is evaluating a new project that has the same risk as the company itself. The project will generate annual aftertax cash flows of $293,000 per year for 7 years. The tax rate is 35 percent. What is the most the company would be willing to spend today on the project?

96) \_\_\_\_\_\_

A) $1,431,686   
 B) $1,689,210  
 C) $1,504,125  
 D) $1,383,963  
 E) $1,473,794

**ESSAY. Write your answer in the space provided or on a separate sheet of paper.  
97)** Explain a) the factors that determine a security’s beta and b) how asset beta relates to equity beta.

**98)** The Neptune Company offers network communications systems to computer users. The company is planning a major investment expansion but is unsure of the cost of equity capital as it has no publicly-traded equity. Your assignment is to determine an appropriate equity cost. List and explain the steps you will need to take to complete this assignment.

**99)** World Corporation has traditionally employed a firm-wide discount rate for capital budgeting purposes. However, its two divisions, publishing and entertainment, have different degrees of risk given by βP = 1.1, βE = 1.8, while the beta for the overall firm is 1.3. The publishing division has proposed three projects with the following internal rates of return: P1 = 13.2 percent; P2 = 12.4 percent; and P3 = 9.8 percent. The entertainment division has presented their three projects: E1 = 16.4 percent; E2 = 17.8 percent; and E3 = 14.7 percent. The risk-free rate is 4 percent and the market risk premium is 8 percent. Identify which projects will be accepted if the firm applies its overall beta to all projects. Then identify which projects will be accepted if the division betas are properly applied.

**100)** On-line Text Company has four new text publishing products that it is considering. The projects are of equal risk with a beta of 1.6. The risk-free rate is 4.2 percent and the market rate is expected to be 12.3 percent. The projects and their expected internal rates of return are: W = 14.4 percent; X = 18 percent, Y = 16.4 percent; and Z = 17.2 percent. Which projects should be accepted? Justify your acceptance decision.

**Answer Key**Test name: Chapter 13

1) C

2) B

3) E

4) A

5) C

6) D

7) D

8) B

9) B

10) B

11) D

12) D

13) D

14) B

15) A

16) C

17) A

18) D

19) A

20) A

21) A

22) E

23) C

24) B

25) E

26) D

27) D

28) B

29) A

30) D

31) E

32) D

33) B

34) A

35) C

36) E

37) A

38) D

39) B

40) A

41) C

*R*S = .016 + 1.16(.107 − .016)  
 *R*S = .1216, or 12.16%

42) B

*R*S = .014 + 1.22(.066 − .014)  
 *R*S = .0774, or 7.74%

43) D

*R*s = [$4.20(1.055)]/$51.75 + .055  
 *R*s = .1406, or 14.06%

44) A

*R*s = $1.50/$53.25 + .075  
 *R*s = .1032, or 10.32%

45) B

.084 = .038 + βEquity(.104 − .038)  
 βEquity = .697  
   
 βAsset = (1/1.6)(.697)  
 βAsset = .44

46) B

βEquity = .57/(1/1.56)  
 βEquity = .89

47) E

βEquity = .88/(1/1.23)  
 βEquity = 1.08

48) A

βAsset = (1/1.47)(1.2)  
 βAsset = .82

49) B

.094 = .038 + βEquity(.136 − .038)  
 βEquity = .5714  
   
 .36 = [S/(B + S)](.5714)  
 [S/(B + S)] = .63  
 (B + S)/S = 1/.63  
 B/S + 1 = 1.59  
 B/S = .59

50) B

*R*S = $1.62/$42.39 + (1 − .35)(.143)  
 *R*S = .1312, or 13.12%

51) A

*R*S = [$1.48(1.021)]/$14.65 + .021  
 *R*S = .1241, or 12.41%

52) E

*R*Project = .028 + (1.32 − .18)(.094 − .028)  
 *R*Project = .1032, or 10.32%

53) C

The pure play approach applies, so:  
   
 *R*Project = .107 + .01  
 *R*Project = .117, or 11.7%

54) E

*R*P = $3.80/$42.70  
 *R*P = .0890, or 8.90%

55) C

*R*D = .075(1 − .22)  
 *R*D = .0585, or 5.85%

56) A

*R*D = [.051/(1 − .34)](1 − .21)  
 *R*D = .0610, or 6.10%

57) C

*R*E = .04 + 1.1(.08)  
 *R*E = .128  
   
 Debt = 80($1,000)  
 Debt = $80,000  
   
 Common stock = 4,000($40)  
 Common stock = $160,000  
   
 Total debt and equity = $80,000 + 160,000  
 Total debt and equity = $240,000  
   
 WACC = ($160,000/$240,000)(.128) + ($80,000/$240,000)(.086)(1 − .21)  
 WACC = .1080, or 10.80%

58) D

Debt = $1,500(.98)  
 Debt = $1,470  
   
 Preferred stock = 25($45)  
 Preferred stock = $1,125  
   
 Common stock = 105($22)  
 Common stock = $2,310  
   
 Total debt and equity = $1,470 + 1,125 + 2,310  
 Total debt and equity = $4,905  
   
 WACC = ($2,310/$4,905)(.124) + ($1,125/$4,905)(.08) + [($1,470/$4,905)(.078)(1 − .21)]  
 WACC = .0952, or 9.52%

59) C

.095 = .1275*W*E + (1 − *W*E)(.065)  
 *W*E = .48  
   
 D/E = (1 − .48)/.48  
 D/E = 1.08

60) D

Debt = 5($1,000)(.99)  
 Debt = $4,950  
   
 Common stock = 200($37)  
 Common stock = $7,400  
   
 Total debt and equity = $4,950 + 7,400  
 Total debt and equity = $12,350  
   
 *R*E = $1.20(1.04)/$37 + .04  
 *R*E = .07373, or 7.373%  
   
 WACC = ($7,400/$12,350)(.07373) + [($4,950/$12,350)(.067)(1 − .21)]  
 WACC = .0654, or 6.54%

61) E

*R*s = .034 + 1.37(.082)  
 *R*s = .1463, or 14.63%  
   
 WACC = (1/1.45)(.1463) + (.45/1.45)(.076)(1 − .23)  
 WACC = .1191, or 11.91%

62) E

WACC = .60(.114) + .40(.062)  
 WACC = .0932, or 9.32%  
   
 PV0 = $72,000/1.0932 + $78,000/1.09322 + $84,000/1.09323 + [$84,000(1.032)/(.0932 − .032)]/1.09323  
 PV0 = $1,279,623

63) B

PVTerminal value = [$64,000(1.02)/(.08 − .02)]/1.083  
 PVTerminal value = $863,689

64) C

WACC = (1/1.25)(.13) + (.25/1.25)(.09)(1 − .21)  
 WACC = .1182  
   
 NPV = −$48,000,000 + $13,500,000[(1 − 1/1.11825)/.1182]  
 NPV = $879,838

65) E

Common stock = 25,000($32)  
 Common stock = $800,000  
   
 Debt = $450,000(1.02)  
 Debt = $459,000  
   
 Total debt and equity = $800,000 + 459,000  
 Total debt and equity = $1,259,000  
   
 *R*S = .057 + .042  
 *R*S = .099, or 9.9%  
   
 WACC = ($800,000/$1,259,000)(.099) + ($459,000/$1,259,000)(.068)(1 − .21)  
 WACC = .0825, or 8.25%  
   
 NPV = −$328,000 + $52,500/1.0825 + $155,000/1.08252 + $225,000/1.08253  
 NPV = $30,157

66) E

CF1 = $318,000(1 − .21) + 34,000 − 46,500 − 5,500  
 CF1 = $233,220  
   
 CF2 = $364,000(1 − .21) + 32,100 − 28,000 − 6,500  
 CF2 = $285,160  
   
 CF3 = $392,000(1 − .21) + 28,700 − 36,200 − 1,200  
 CF3 = $300,980  
   
 NPV = −$2,250,000 + $233,220/1.071 + $285,160/1.0712 + ($300,980 + 2,500,000)/1.0713  
 NPV = $496,399

67) E

ƒ = (1/1.45)(.095) + (.45/1.45)(.066)  
 ƒ = .0860, or 8.60%

68) B

ƒ = (1/1.35)(.0876) + (.35/1.35)(.0593)  
 ƒ = .0803 or 8.03%

69) B

*RE* = [($2.83(1.0355)/$40.36] + .0355  
 *RE* = .1081, or 10.81%

70) B

*RE* = ($4.39/$72.03) + .0355  
 *RE* = .0964, or 9.64%

71) E

*RE* = .0287 + .86(.1160 − .0287)  
 *RE* = .1038, or 10.38%

72) B

*RE* = .0321 + 1.10(.0770)  
 *RE* = .1168, or 11.68%

73) C

*RE* = .0290 + 1.22(.0710)  
 *RE* = .1156, or 11.56%  
   
 *RE* = $4.29(1.0345)/$72.87 + .0345  
 *RE* = .0954, or 9.54%  
   
 *RE* = (11.56% + 9.54)/2  
 *RE* = 10.55%

74) D

*RP* = $5.10/$93.74  
 *RP* = .0544, or 5.44%

75) D

$944 = $31.50{1 − [1/(1 + *R*)40]}/*R* + $1,000/*R*40  
   
 *R* = .0341, or 3.41%  
   
 YTM = 3.409% × 2  
 YTM = 6.82%

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Enter | 40 | | |  | | | −$944 | | | $31.50 | | | $1,000 | | |
|  |  | **N** |  |  | **I/Y** |  |  | **PV** |  |  | **PMT** |  |  | **FV** |  |
| Solve for |  | | | 3.41% | | |  | | |  | | |  | | |

76) A

$947 = $30.50{1 − [1/(1 + *R*)46]}/*R* + $1,000/*R*46  
   
 *R* = .0327, or 3.27%  
   
 YTM = 3.270% × 2  
 YTM = 6.55%  
   
 *RD* = 6.55%(1 − .40)  
 *RD* = 3.93%

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Enter | 46 | | |  | | | −$947 | | | $30.50 | | | $1,000 | | |
|  |  | **N** |  |  | **I/Y** |  |  | **PV** |  |  | **PMT** |  |  | **FV** |  |
| Solve for |  | | | 3.27% | | |  | | |  | | |  | | |

77) A

$1,052 = $29.30{1 − [1/(1 + *R*)44]}/*R* + $1,000/*R*44  
   
 *R* = .0273, or 2.73%  
   
 YTM = 2.73% × 2  
 YTM = 5.45%  
   
 *RD* = 5.45%(1 − .39)  
 *RD* = 3.33%

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Enter | 44 | | |  | | | −$1,052 | | | $29.30 | | | $1,000 | | |
|  |  | **N** |  |  | **I/Y** |  |  | **PV** |  |  | **PMT** |  |  | **FV** |  |
| Solve for |  | | | 2.73% | | |  | | |  | | |  | | |

78) C

Market value of debt = 1.02($5,300,000) + 1.05($9,600,000)  
 Market value of debt = $5,406,000 + 10,080,000  
 Market value of debt = $15,486,000  
   
 YTM Bond 1  
   
 $2,040 = $38.40{1 − [1/(1 + *R*)14]} / *R* + $2,000 / *R*14  
 *R* = .0176  
 YTM = 3.52%  
   
 YTM Bond 2  
   
 $1,050 = $33.05{1 − [1/(1 + *R*)32]} / *R* + $1,000 / *R*32  
 *R* = .0306  
 YTM = 6.12%  
   
 Aftertax cost of debt = [3.52%($5,406,000/$15,486,000) + 6.12%($10,080,000/$15,486,000)](1 − .39)  
 Aftertax cost of debt = 3.18%

79) B

|  |  |  |
| --- | --- | --- |
| **Common stock:** | 11,600 × $50 = | $ 580,000 |
| **Preferred stock:** | 285 × $92 = | 26,220 |
| **Debt:** | 320 × $2,000 × 1.09 = | 697,600 |
| **Total value:** |  | $ 1,303,820 |

*XE* = $580,000/$1,303,820  
 *XE* = .4448

80) A

|  |  |  |
| --- | --- | --- |
| **Common stock:** | 12,000 × $54 = | $ 648,000 |
| **Preferred stock:** | 305 × $92 = | 28,060 |
| **Debt:** | 360 × $2,000 × 1.11 = | 799,200 |
| **Total value:** |  | $ 1,475,260 |

*XP* = $28,060/$1,475,260  
 *XP* = .0190

81) B

|  |  |  |
| --- | --- | --- |
| **Common stock:** | 7,100 × $94 = | $ 667,400 |
| **Preferred stock:** | 6,000 × $47 = | 282,000 |
| **Debt:** | 600 × $2,000 × 1.085 = | 1,302,000 |
| **Total value:** |  | $ 2,251,400 |

*XD* = $1,302,000/$2,251,400  
 *XD* = .5783

82) C

|  |  |  |
| --- | --- | --- |
| **Common stock:** | 18,900 × $76 = | $ 1,436,400 |
| **Bond 1:** | .95 × $320,000 = | 304,000 |
| **Bond 2:** | .97 × $420,000 = | 407,400 |
| **Total value:** |  | $ 2,147,800 |

*XD* = ($304,000 + 407,400)/$2,147,800  
 *XD* = .3312

83) E

*XE* = 1/(1 + 1.41)  
 *XE* = .4149

84) E

WACC = (1/1.40)(10.5%) + (.40/1.40)(5.1%)(1 − .35)  
 WACC = 8.45%

85) A

WACC = (1/1.88)(12.8%) + (.88/1.88)(4.3%)  
 WACC = 8.82%

86) C

WACC = .0880 = (1 − *XD*)(.113) + (*XD*)(.059)(1 − .40)  
 *XD* = .3222  
   
 D/E = .3222/(1 − .3222)  
 D/E = .48

87) D

WACC = .73(10.51%) + .27(5.25%)(1 − .40)  
 WACC = 8.52%

88) C

Market value of debt = .929($387,000)  
 Market value of debt = $359,523  
   
 Book value of equity = $945,000 − 387,000  
 Book value of equity = $558,000  
   
 Market value of equity = 2.53($558,000)  
 Market value of equity = $1,411,740  
   
 Market value of company = $359,523 + 1,411,740  
 Market value of company = $1,771,263  
   
 WACC = 10.9%($1,411,740/$1,771,263) + 5.5%($359,523/$1,771,263)(1 − .39)  
 WACC = 9.37%

89) A

Market value of debt = .945($285,000)  
 Market value of debt = $269,325  
   
 Market value of equity = 2.47($545,000)  
 Market value of equity = $1,346,150  
   
 Market value of company = $269,325 + 1,346,150  
 Market value of company = $1,615,475  
   
 WACC = 10.7%($1,346,150/$1,615,475) + 4.11%($269,325/$1,615,475)  
 WACC = 9.60%

90) D

|  |  |  |
| --- | --- | --- |
| **Common stock:** | 28,500 × $72 = | $ 2,052,000 |
| **Preferred stock:** | 6,950 × $91.50 = | 635,925 |
| **Debt:** | 1.075 × $383,000 = | 411,725 |
| **Total value:** |  | $ 3,099,650 |

*RP* = $7.10/$91.50  
 *RP* = .0776, or 7.76%  
   
 WACC = 13.35%($2,052,000/$3,099,650) + 7.76%($635,925/$3,099,650) + 7.87%($411,725/$3,099,650)(1 − .40)  
 WACC = 11.06%

91) E

|  |  |  |
| --- | --- | --- |
| **Common stock:** | 10,700 × $63 = | $ 674,100 |
| **Debt:** | 320 × $1,000 × .936 = | 299,520 |
| **Total value:** |  | $ 973,620 |

WACC = 11.13%($674,100/$973,620) + 5.89%($299,520/$973,620)(1 − .40)  
 WACC = 8.79%

92) A

*RE* = 2.7% + 1.23(6.9%)  
 *RE* = 11.19%  
   
 Project's required return = 11.19% + 1.9%  
 Project's required return = 13.09%

93) D

WACC = .65(10.4%) + (1 − .65(3.28%))  
 WACC = 7.91%  
   
 Project return = 7.91% − 1.5%  
 Project return = 6.41%

94) B

WACC = (1/1.65)(11.15) + (.65/1.65)(5.43%)(1 − .35)  
 WACC = 8.15%  
   
 NPV = −$7,900,000 + $1,870,000(PVIFA8.15%,6)  
 NPV = $706,112

95) A

WACC = 10.87%($10,300,000/$13,700,000) + 4.83%($3,400,000/$13,700,000)(1 − 0.35)  
 WACC = 8.95%  
   
 Project return = 8.95% + 1.1%  
 Project return = 10.05%  
   
 NPV = −$2,100,000 + $551,000(PVIFA10.05%,6)  
 NPV = $296,133

96) C

D/E = 1.54 − 1  
 D/E = .54  
   
 WACC = 11.23%(1/1.54) + 4.92%(.54/1.54)(1 − .35)  
 WACC = 8.41%  
   
 NPV = 0 = Initial cost + $293,000(PVIFA8.41%,7)  
 Initial cost = $1,504,125

97) a.The key factors affecting a security’s beta are the cyclicality of revenues, operating leverage, and financial leverage.  
 b.The asset beta equals the equity beta for an all-equity firm. The equity beta is greater than the asset beta for a levered firm.

98) Step 1: Collect estimates of equity betas for firms in the same business as Neptune.  
 Step 2: Collect market values and debt-equity ratios for each business in Step 1.  
 Step 3: De-lever the individual equity betas and estimate an average asset beta for the group.  
 Step 4: Re-lever the average asset beta using Neptune’s target debt-equity ratio to determine Neptune’s equity beta.  
 Step 5: Determine the risk-free rate and the market risk premium.  
 Step 6: Calculate the estimated cost of equity capital using Neptune’s estimated equity beta.

99) *R*F = .04 + 1.3(.08)  
 *R*F = .144, or 14.4%  
   
 *R*P = .04 + 1.1(.08)  
 *R*P = .128, or 12.8%  
   
 *R*E = .04 + 1.8(.08)  
 *R*E = .184. or 18.4%  
   
 Based on the firm’s beta, the firm will accept projects E1, E2, and E3.  
 Based on the division’s betas, the firm will only accept project P1.

100) *R*s = .042 + 1.6(.123 − .042)  
 *R*s = .1716, or 17.16%  
   
 Accept projects X and Z because their IRR’s exceed the required return of 17.16 percent, which is computed using the appropriate beta of 1.6.