1. The Board of Directors of Beeline, Inc. have decided to base the salary of its financial manager entirely upon the market share of the firm. Accordingly,
   A) the firm may incur some agency costs since the manager will be focused on the market share of the firm rather than acting to maximize earnings.
   B) the financial manager will always act in the best interest of the shareholders since all agency costs have been eliminated through salary incentives.
   C) this arrangement may be unnecessary, since the goal of the firm is to maximize earnings for shareholders, and that is most likely accomplished through larger market share.
   D) the manager may not act to maximize the current value of the firm's stock, resulting in agency costs for the firm's stockholders.
   E) the firm will incur some agency costs if the manager acts to maximize market share.

2. A “Name That Tune” contest has a grand prize of $500,000. However, the contest stipulates that the winner will receive just $200,000 immediately, and $30,000 at the end of each of the next 10 years. Assuming that one can earn 8% on their money, how much has the contest winner actually won?
   A) $250,000.00
   B) $309,225.11
   C) $365,826.02
   D) $401,302.44
   E) $500,000.00

3. Denzel wishes to save money to provide for his retirement. Beginning one month from now, he will begin depositing a fixed amount into a retirement savings account that will earn 10% compounded monthly. He will make 420 such deposits. Then, one year after making his final deposit, he will withdraw $75,000 annually for 20 years. The fund will continue to earn 10% compounded monthly. How much should the monthly deposits be for his retirement plan?
   A) $119.11
   B) $149.58
   C) $162.92
   D) $184.89
   E) $209.38
4. What is the present value of $600 payments received at the beginning of each year for the next 10 years? Assume an interest rate of 8% compounded monthly.
   A) $3,069.13
   B) $3,972.13
   C) $4,026.05
   D) $4,301.82
   E) $4,955.26

5. If the required return on a bond does not change from one year to the next, then ________ over the same period. (Ignore changes in default risk.)
   A) the price of a perpetual bond will rise
   B) the price of a premium bond will rise
   C) the price of a discount bond will rise
   D) the price of a par bond will rise
   E) the price of any bond will stay the same

6. For a premium bond, the required return is less than the:

   I. Current yield.
   II. Yield to maturity.
   III. Coupon rate.
   A) I only
   B) I and II only
   C) II and III only
   D) I and III only
   E) I, II, and III

7. On January 1, 2002, HomeSafe Cab Co. will issue new bonds to finance its expansion plans. Currently outstanding 8%, January 1, 2017 HomeSafe bonds are selling for $1,091.96. If interest is paid semiannually for both bonds, what must the coupon rate of the new bonds be in order for the issue to sell at par?
   A) 5.75%
   B) 6.00%
   C) 6.50%
   D) 6.75%
   E) 7.00%
Use the following to answer question 8:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>McLeod 11s09</td>
<td>?</td>
<td>20</td>
<td>65½</td>
<td>-1/2</td>
</tr>
</tbody>
</table>

8. What is the current yield for this bond? (Assume semiannual coupons.)
   A) 11.0%
   B) 14.2%
   C) 16.8%
   D) 18.9%
   E) 20.4%

9. Which of the following is (are) true?
   I. The dividend yield on a stock is the annual dividend divided by the par value.
   II. When the constant dividend growth model holds, \( g = \) capital gains yield.
   III. The total return on a share of stock = dividend yield + capital gains yield.
   A) I only
   B) II only
   C) I and II only
   D) II and III only
   E) I, II, and III

10. A stock that pays a constant dividend of $1.50 forever currently sells for $10.71. What is the required rate of return?
    A) 10%
    B) 12%
    C) 13%
    D) 14%
    E) 15%
11. The stock of MTY Golf World currently sells for $90 per share. The firm has a constant dividend growth rate of 6% and just paid a dividend of $5.09. If the required rate of return is 12%, what will the stock sell for one year from now?
   A) $ 90.00
   B) $ 93.52
   C) $ 95.40
   D) $ 99.80
   E) $112.78

12. CBC stock is expected to sell for $25 two years from now. Supernormal growth of 5% is expected for the next 2 years. The current dividend is $1.75 and the required return is 14%. What constant growth rate is expected beginning in year 3?
   A) 2.39%
   B) 4.18%
   C) 4.75%
   D) 5.16%
   E) 5.83%

13. You are considering an investment with the following cash flows. Your required return is 8%, you require a payback of 3 years and a discounted payback of 4 years. If your objective is to maximize your wealth, should you take this investment?

<table>
<thead>
<tr>
<th>Year</th>
<th>Cash Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>-$50,000</td>
</tr>
<tr>
<td>1</td>
<td>$20,000</td>
</tr>
<tr>
<td>2</td>
<td>$20,000</td>
</tr>
<tr>
<td>3</td>
<td>$20,000</td>
</tr>
<tr>
<td>4</td>
<td>$20,000</td>
</tr>
<tr>
<td>5</td>
<td>-$50,000</td>
</tr>
</tbody>
</table>

   A) Yes, because the payback is 2.5 years.
   B) Yes, because the discounted payback is less than 4 years.
   C) Yes, because both the payback and the discounted payback are less than 2 years.
   D) No, because the NPV is negative.
   E) No, because the project cash flows are not conventional.
14. You are going to choose between two investments. Both cost $50,000, but investment A pays $25,000 a year for 3 years while investment B pays $20,000 a year for 4 years. If your required return is 12%, which should you choose?
   A) A because it pays back sooner.
   B) A because its IRR exceeds 12%.
   C) A because it has a higher IRR.
   D) B because its IRR exceeds 12%.
   E) B because it has a higher NPV.

15. Which of the following is inconsistent with efficient markets at its strongest level?
   A) On average, security prices are neither too high nor too low.
   B) One cannot profit regularly from publicly available information.
   C) Historical price trends give you a good idea of where prices are headed in the future.
   D) Prices adjust quickly when reacting to new information.
   E) It is not possible to earn excess abnormal returns by investing in the stock market.

16. If markets are at least semi-strong form efficient, and a company announces new, unexpected information regarding its future prospects—namely, that sales will be much lower than previously expected—what do you expect will happen in the stock market?
   A) The value of a share will decline over an extended period of time as investors begin to sell shares in the company.
   B) The value of a share will fall below what is considered appropriate because of the decreased demand for the shares, but eventually the price will rise to the correct level.
   C) The value of a share will drop immediately to a price that reflects the value of the new information.
   D) The value of a share will rise over a long period of time as investors sell the stock.
   E) The stock price will not change since this type of information has no impact in markets that are semi-strong form efficient.
17. Stock A has a beta coefficient of 0.9, and stock B has a beta coefficient of 1.2. Which of the following statements is false regarding these two stocks?
   A) Stock A is less risky from the market's perspective than a typical stock, and stock B is more risky than a typical stock.
   B) Stock B, if purchased, will increase the market risk of a portfolio more than stock A would (if purchased).
   C) Stock A necessarily must have a lower standard deviation of returns than stock B.
   D) Stock B must have a higher expected return than stock A if markets are efficient.
   E) Stock A has the same reward to risk ratio as stock B.

18. Which of the following describes a portfolio that plots above the security market line?
   A) The security is overvalued.
   B) The security's reward to risk ratio is too high.
   C) The security is providing a return that is less than expected.
   D) The security's beta is too high.
   E) The security provides a return that is less than the average return on the market.

19. If portfolio weights are positive: 1) Can the return on a portfolio ever be greater than the largest return on an individual security in the portfolio? 2) Can the variance of a portfolio ever be greater than the largest variance of an individual security in the portfolio?
   A) 1) yes; 2) yes
   B) 1) yes; 2) no
   C) 1) no; 2) yes
   D) 1) no; 2) no
   E) 1) maybe; 2) no

20. Your firm invests in a set of risky projects that increase the diversifiable risk of the firm without changing its systematic risk. All else the same, the expected risk premium on the stock is most likely to:
   A) Increase, because the difference between the expected return on the firm's stock and the risk-free rate will widen.
   B) Decrease, because the difference between the expected return on the firm's stock and the risk-free rate will narrow.
   C) Remain unchanged, because the level of systematic risk is unchanged.
   D) Increase or decrease, depending on the internal rate of return of the new projects.
   E) Increase or decrease, more information is needed.
21. What is the expected market return if the expected return on asset A is 19% and the risk-free rate is 5%? Asset A has a beta of 1.4.
   A) 14%
   B) 15%
   C) 16%
   D) 19%
   E) 24%

22. You hold four stocks in your portfolio: A, B, C, and D. The portfolio beta is 1.10. Stock C comprises 30% of the dollar value of your holdings and has a beta of 1.50. If you sell all of your holdings in stock C, and replace it with an equal investment in stock E (which has a beta of 0.8), what will be your new portfolio beta?
   A) 0.72
   B) 0.89
   C) 1.00
   D) 1.05
   E) 1.22

Use the following to answer questions 23-24:

<table>
<thead>
<tr>
<th>State</th>
<th>Probability</th>
<th>Return on A</th>
<th>Return on B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boom</td>
<td>.65</td>
<td>0.30</td>
<td>0.05</td>
</tr>
<tr>
<td>Bust</td>
<td>.35</td>
<td>0.10</td>
<td>0.20</td>
</tr>
</tbody>
</table>

23. What is the expected return on a portfolio that is 70% invested in A and 30% invested in B?
   A) 0.1413
   B) 0.1592
   C) 0.1918
   D) 0.2247
   E) 0.2300
24. What is the standard deviation of a portfolio with one-quarter of the funds in A and the remainder of the funds in B?
   A) 0%
   B) 1%
   C) 2%
   D) 3%
   E) 4%

Use the following to answer question 25:

<table>
<thead>
<tr>
<th>Security</th>
<th>Return</th>
<th>Standard Deviation</th>
<th>Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>16%</td>
<td>20%</td>
<td>1.2</td>
</tr>
<tr>
<td>B</td>
<td>12%</td>
<td>25%</td>
<td>0.8</td>
</tr>
<tr>
<td>Risk-free asset</td>
<td>4%</td>
<td>?</td>
<td>?</td>
</tr>
</tbody>
</table>

25. What is the portfolio expected return and the portfolio beta if you invest 35% in A, 45% in B and 20% in the risk-free asset?
   A) 10.2%; 1.12
   B) 10.2%; 1.00
   C) 11.8%; 0.94
   D) 11.8%; 0.72
   E) 11.8%; 0.78

26. Given the following information, what is the firm's weighted average cost of capital?
    Market value of equity = $30 million; market value of debt = $20 million; cost of equity = 15%; cost of debt = 9%; equity beta = 1.4; tax rate = 35%.
   A) 11.34%
   B) 12.60%
   C) 12.97%
   D) 13.32%
   E) 14.08%
27. A firm has 5,000,000 shares of common stock outstanding with a market price of $9.00 per share. It has 25,000 bonds outstanding, each selling for $1,100. The bonds mature in 12 years, have a coupon rate of 8.5%, and pay coupons annually. The firm's beta is 1.4, the risk free rate is 5%, and the market risk premium is 9%. The tax rate is 35%.
Calculate the WACC.
A) 8.29%
B) 9.33%
C) 10.84%
D) 12.71%
E) 14.30%

28. A firm has a WACC of 15%. It is financed with 25% debt and 75% equity. The firm's cost of debt is 12% and its tax rate is 34%. If the firm's dividend growth rate is 6% and its current stock price is $50, what is the value of the next dividend the firm is expected to pay?
A) Less than $5.50
B) Between $5.51 and $5.75, inclusive
C) Between $5.76 and $6.00, inclusive
D) Greater than $6.00
E) Cannot be determined without additional information

29. Given the following information, what is the WACC?
Common Stock: 1 million shares outstanding, $40 per share, $1 par value, beta = 1.3
Bonds: 10,000 bonds outstanding, $1,000 face value each, 8% annual coupon, 22 years to maturity, market price = $1,101.23 per bond
Market risk premium = 8.6%, risk-free rate = 4.5%, marginal tax rate = 34%
A) 7.89%
B) 9.90%
C) 12.19%
D) 13.30%
E) 15.78%
30. A proposed project lasts 3 years and has an initial investment of $500,000. The aftertax cash flows are estimated at $120,000 for year 1, $240,000 for year 2, and $240,000 for year 3. The firm has a target debt/equity ratio of 0.6. The firm's cost of equity is 15% and its cost of debt is 8%. The tax rate is 35%. What is the NPV of this project?

A) $−24,600
B) $0
C) $180
D) $9,627
E) $41,845
Formulae Sheet

\[ PV \times (1+r)^t = FV \]
\[ r = \left( \frac{FV}{PV} \right)^{\frac{1}{t}} - 1 \]
\[ t = \frac{\ln(FV / PV)}{\ln(1+r)} \]

\[ APV(Ordinary Annuity) = C \times \left[ \frac{1 - \frac{1}{(1+r)^t}}{r} \right] \]

\[ APV(Annuity Due) = APV(Ordinary Annuity) \times (1+r) \quad \text{(for cash inflow)} \]

\[ PMT(Annuity Due) = PMT(Ordinary Annuity) / (1+r) \quad \text{(for cash outflow)} \]

\[ AFV(Ordinary Annuity) = C \times \left[ \frac{(1+r)^t - 1}{r} \right] \]

\[ AFV(Annuity Due) = AFV(Ordinary Annuity) \times (1+r) \]

\[ PV(Perpetuity) = \frac{C}{r} \]

\[ EAR = \left( 1 + \frac{\text{APR}}{m} \right)^m - 1 \]

\[ EAR = e^{\text{APR}} - 1 \]

\[ Bond \ Price = C \times \left\{ \left[ 1 - \frac{1}{(1+r)^t} \right] / r \right\} + FV / (1+r)^t \quad \text{(for coupon payments paid annually)} \]

Constant dividend model: \[ P_0 = \frac{D_0 \times (1+g)}{r} = \frac{D_1}{r} \]

Constant dividend growth model: \[ P_0 = \frac{D_0 \times (1+g)}{r - g} = \frac{D_1}{r - g} \]

Required return: \[ r = (D_1 / P_0) + g \]

\[ AAR = \frac{Average \ Net \ Income}{Average \ Book \ Value \ of \ Investment} \]

Profitability Index = \[ \frac{PV \ of \ Future \ Cash \ Flow}{Cost \ of \ Investment} \]
After Tax Salvage Value = (Salvage Value) - (Salvage Value-Book Value)\(T_c\)

\[
Incremental\ Cash\ flows_t = (\Delta \text{Revenue} - \text{Cost})_t (1 - T_c) \\
+ \Delta \text{Depreciation}_t T_c \\
+ \Delta (\text{Salvage Value} - \text{Taxes Due})_t \\
+ \Delta \text{Net Working Capital}_t 
\]

\[r = \frac{1 + R}{1 + h} - 1\]

Historical:

A. Average Return = \(R_i = \sum_{t=1}^{n} R_n / n\)

B. Standard Deviation of Return = \(\sigma_i = \left[ \sum_{t=1}^{n} (R_t - R_i)^2 / n \right]^{1/2}\)

Expected/Forecasted:

A. Average Return = \(E(R_i) = \sum_{i=1}^{K} P_n R_n\)

B. Standard Deviation of Return = \(\left[ \sum_{s=1}^{K} \{P_n [R_n - E(R_i)]^2 \} \right]^{1/2}\)

Covariance/Correlation Coefficient:

\(\sigma_{ij} = \rho_{ij} \sigma_i \sigma_j\)

Expected Return and Risk for a 2-Asset Portfolio:

A. \(E(R_p) = w_1 E(R_1) + w_2 E(R_2)\)

B. \(\sigma_p = \left[ w_1^2 \sigma_1^2 + w_2^2 \sigma_2^2 + 2w_1w_2 \rho_{12} \sigma_1 \sigma_2 \right]^{1/2}\) or,

\(\sigma_p = \left[ w_1^2 \sigma_1^2 + w_2^2 \sigma_2^2 + 2w_1w_2 \rho_{12} \sigma_1 \sigma_2 \right]^{1/2}\)

Security Market Line (SML): \(E(R_i) = R_f + \beta_i [E(R_m) - R_f]\)

Beta for individual security

\(\beta_i = \frac{\sigma_{im}^2}{\sigma_m^2} = \frac{\rho_{im} \sigma_i \sigma_m}{\sigma_m^2} = \frac{\rho_{im} \sigma_i}{\sigma_m}\)

Portfolio Beta: \(\beta_p = W_1 \beta_1 + W_2 \beta_2\)

Cost of Preferred Stocks: \(R_p = \frac{D_1}{P_0} = \frac{\text{Dividends}}{\text{Price}}\)

Unadjusted (No taxes): \(WACC = \frac{E}{V} \times R_E + \frac{D}{V} \times R_D\)

After-Tax Cost of debt = \(R_D \times (1 - T_c)\)

Adjusted (with Corporate tax): \(WACC = \frac{E}{V} \times R_E + \frac{D}{V} \times R_D \times (1 - T_c)\)
1. D.

2. D.
\[
PV = 200,000 + 30,000 \times \left[ 1 - \frac{1}{(1 + 0.08)^{10}} \right] / 0.08
\]
\[
PV = 401,302.4420
\]

3. C.
\[
EAR = (1 + 0.10/12)^{12} - 1 = 10.47\%
\]
\[
PVA = 75,000 \times \left[ 1 - \frac{1}{(1 + 0.1047)^{20}} \right] / 10.47
\]
\[
= 618,557.45
\]
\[
618,557.45 = C \times \left[ (1 + 0.10/12)^{20} - 1 \right] / 10/12
\]
\[
C = 162.9224
\]

4. D.
\[
EAR = (1 + 0.08/12)^{12} - 1 = 8.30\%
\]
\[
PVA = 600 \times \left[ 1 - \frac{1}{(1 + 0.083)^{10}} \right] / 0.83
\]
\[
= 3972.1344
\]
\[
PVA_{DUE} = 3972.1344 \times (1 + 0.083) = 4301.8215
\]
7. E

\[ 1091.96 = 8012 \times \left[ 1 - \frac{1}{(1+R/12)^{15 \times 2}} \right] / R/12 \]

\[ + 1000 \sqrt[15 \times 2]{(1+R/12)^{15 \times 2}} = \]

\[ R/12 = 3.5 \% \quad R = 7 \% \]

New bond to be sold at par, so CR = R = 7%.

8. C.

\[ CY = 110 / 650 \times 100 = 16.91 \% \]

9. D.

10. D.

\[ 10.71 = \frac{1.5}{R} \quad R = 14 \% \]

11. C.

\[ P_1 = 90 \times (1 + 0.06) = 95.40 \]

12. E.

\[ P_2 = \frac{D_3}{R - g} \]

\[ 2 - g = \frac{1.75(1 + 0.05)^2(1 + g)}{1.14 - g} \]

\[ g = 5.83 \% \]
13. D.
\[
NPV = -50000 + 20000 \frac{1}{1.08} + 20000 \frac{1}{1.08^2} \\
+ 20000 \frac{1}{1.08^3} + 20000 \frac{1}{1.08^4} \\
- \frac{50000}{1.08^5} \leq 0
\]

14. E.
\[
NPV_A = 25000 \left(1 - \frac{1}{(1+12)^3}\right)/12 - 50000 \\
= 10,1045.78
\]
\[
NPV_B = 20000 \left(1 - \frac{1}{(1+12)^4}\right)/12 - 50000 \\
= 10,746.98
\]
Take B.

15. C.
16. C.
17. C
18. B
19. D
20. C

21. B.
\[
E(R)_n = .05 + \left[1.4(E(R)_n - .05)\right] \\
E(R)_n = 15\%
\]

22. B.
\[
1.10 = .30(1.5) + .70(x) \\
x = .9285
\]
\[ \beta \rho = 0.30(0.8) + 0.70(0.9285) \]
\[ \beta \rho = 0.89 \]

23. c.
\[ R_{\text{room}}^p = 0.7(0.30) + 0.30(0.05) = 0.225 \]
\[ R_{\text{bus}}^p = 0.7(0.10) + 0.30(0.20) = 0.13 \]
\[ E(R)^p = 0.225(0.65) + 0.13(0.35) = 0.1918 \]

24.10.
\[ \sigma_{\rho} \left[ 0.65(0.225 - 0.1918)^2 + 0.35(0.13 - 0.1918)^2 \right]^{1/2} \]
\[ \sigma_{\rho} = 0.63 \]

25. E.
\[ E(R)^p = 0.35(16\%) + 0.45(12\%) = 11.8\% \]
\[ \beta \rho = 0.35(1.2) + 0.45(0.8) + 0.20(0) = 0.75 \]

26. A.
\[ \text{APPCC} = 3 \% 50 \times 0.15 + 2 \% 50 \times 0.09 \times (1 - 0.35) \]
\[ = 11.34\% \]

27. D.
\[ R_E = 0.5 + (0.09) \times 10 = 1.76 \]
\[ 1100 = 85 \times \left[ 1 - \frac{1}{(1+r)^{12}} \right] R + 1000 \frac{1}{(1+r)^{12}} \]
\[ r = R_0 = 7.2258\% \]
E = 5,000,100 \times 9 = 45,000,100
D = 25,000 \times 1100 = 27,500,100
\[ ELV = \frac{45,000,100}{27,500,100} = 62.07\% \]
\[ D/V = 1 - 62.07\% = 37.93\% \]
\[ WACC = 0.6207(0.176) + (0.3793)(0.072258)(1-35) = 12.70\% \]

28. B.
\[ \delta_0 = \frac{D_1}{RE - \delta_6} \]
\[ 0.15 = 0.75(RE) + 0.25(1.12)(1-0.34) \]
\[ RE = 17.44\% \]
\[ \delta_0 = \frac{D_1}{174 - \delta_6} \]
\[ D_1 = 5.70 \]

29. D.
\[ RE = 0.045 + (0.086) \times 1.3 = 15.68\% \]
\[ 1101.23 = 80 \times \left[ 1 - \frac{1}{(1+y)^2} \right] R + 1000 \times \frac{1}{(1+y)^2} \]
\[ V = \delta_0 = 7.0788\% \]
\[ E = 1,000,000 \times 40 = 40,000,000 \]
\[ D = 100,000 \times 1101.23 = 110,123,000 \]
\[ ELV = 40,000,100 \sqrt{110,123,000} = 78.41\% \]
\[ D/N = 1 - 78.41\% = 21.59\% \]

\[ WACC = 0.7841 (0.1568 + 0.2459 (0.070758) (1 - 0.34)) = 0.1229 + 0.0101 = 13.32\% \]

30. A.

\[ \frac{D}{E} = 0.6 \]
\[ D = 0.6E \]

\[ \frac{E/N}{E+0} = \frac{E}{E+0.6E} = 0.625 \]
\[ D/N = 1 - 0.625 = 0.375 \]

\[ WACC = 0.6250 (0.15) + 0.3750 (0.08) (1 - 0.35) = 0.0936 + 0.0185 = 11.31\% \]

\[ NPV = -500,000 + \frac{120,000}{1.1131} + \frac{240,000}{(1.1131)^2} + \frac{240,000}{(1.1131)^3} \]

\[ NPV = -500,000 + 107,807 + 173,706 + 174,024 \]
\[ = -24,463 \]