1. The Apex Company has just hired Mr. Smith, who is age 25 and is expected to retire at age 60. Mr. Smith’s current salary is $30,000 per year, but his wages are expected to increase by 5 percent annually over the next 35 years. Apex has a defined benefit pension plan in which workers receive 2 percent of their final year’s wages for each year of employment. Assume a world of certainty. Further, assume that all payments occur at year-end. What is Mr. Smith’s expected annual retirement benefit, rounded to the nearest thousands of dollars?

a. $ 35,000

b. $ 57,000

c. $ 89,000

d. $116,000

e. $132,000

2. Midwest Investment Consultants (MIC) operates several stock investment portfolios that are used by firms for investment of pension plan assets. Last year, one portfolio had a realized return of 12.6 percent and a beta coefficient of 1.15. The average T-bond rate was 7 percent and the realized rate of return on the S&P 500 was 12 percent. What was the portfolio’s alpha?

a. -0.75%

b. -0.15%

c. 0%

d. 0.15%

e. 0.75%

3. The Ritz Company has a 40-year-old employee that will retire at age 60 and live to age 75. The firm has promised a retirement income of $20,000 at the end of each year following retirement until death. The firm’s pension fund is expected to earn 7 percent annually on its assets and the firm uses 7% to discount pension benefits. What is Ritz’s annual pension contribution to the nearest dollar for this employee? (Assume certainty and end-of-year cash flows.)

a. $2,756

b. $3,642

c. $4,443

d. $4,967

e. $5,491