SOA November 2005 Exam FM PDF

Exam FM November 2005 November 2005 4 Course FM 1. An insurance company earned a simple rate of interest of 8% over the last calendar year based on the following information: Assets, beginning of year 25,000,000 Sales revenue X Net investment income 2,000,000 Salaries paid 2,200,000 Other expenses paid 750,000 All cash flows occur at the middle of the year. Calculate the effective yield rate. (A) 7.7% (B) 7.8% (C) 7.9% (D) 8.0% (E) 8.1% November 2005 5 Course FM 2. Calculate the Macaulay duration of an eight-year 100 par value bond with 10% annual coupons and an effective rate of interest equal to 8%. (A) 4 (B) 5 (C) 6 (D) 7 (E) 8 November 2005 6 Course FM 3. An investor accumulates a fund by making payments at the beginning of each month for 6 years. Her monthly payment is 50 for the first 2 years, 100 for the next 2 years, and 150 for the last 2 years. At the end of the 7th year the fund is worth 10,000. The annual effective interest rate is i, and the monthly effective interest rate is j. Which of the following formulas represents the equation of value for this fund accumulation? (A) ( ) ( ) ( ) 4 224 1 1 2 1 3 200 i s i i i #63737. = #63739. #1048581. (B) ( ) ( ) ( ) 4 224 1 1 2 1 3 200 i s j j j #63737. = #63739. #1048581. (C) ( ) ( ) ( ) 4 224 1 1 2 1 3 200 j s i i i #63737. = #63739. #1048581. (D) ( ) ( ) ( ) 4 224 1 1 2 1 3 200 j s i i i #63737. = #63739. (E) ( ) ( ) ( ) 4 224 1 1 2 1 3 200 i s j j j #63737. = #63739. November 2005 7 Course FM 4. A ten-year 100 par value

bond pays 8% coupons semiannually. The bond is priced at 118.20 to yield an annual nominal rate of 6% convertible semiannually. Calculate the redemption value of the bond. (A) 97 (B) 100 (C) 103 (D) 106 (E) 109 November 2005 8 Course FM 5. Alex is an investment analyst for a large fund management firm. He specializes in finding risk-free arbitrage opportunities in the stock market. His strategy consists of selling a specific number of call options for each share of stock 0 selected in the fund. Which of the following best describes the technique used by Alex to achieve his goal? (A) Black Scholes option pricing model (B) Capital Asset Pricing Model (C) Full immunization (D) Short sales (E) Hedge ratio November 2005 9 Course FM 6. Consider a yield curve defined by the following equation: 2 0.09 0.002 0.001 ki k k = − where ik is the annual effective rate of return for zero coupon bonds with maturity of k years. Let j be the one-year effective rate during year 5 that is implied by this yield curve. Calculate j. (A) 4.7% (B) 5.8% (C) 6.6% (D) 7.5% (E) 8.2% November 2005 10 Course FM 100Test

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