

Finance 1: Take Home Exam on Financial Mathematics

Multiple Choice

Identify the choice that best completes the statement or answers the question.

- _____ 1. The present value of an annuity will be decreased by
- an decrease in the number of payments.
 - a decrease in the discount rate.
 - a decrease in the amount of the payment in each per period.
 - a and c
 - all of the above.
- _____ 2. You have borrowed \$130,000 to buy a new motor home. Your loan is to be repaid over 15 years at 8% compounded monthly Calculate the principal paid to the bank in month 2 of the loan.
- \$242.67
 - \$378.19
 - \$413.61
 - \$581.25
- _____ 3. A car loan that charges 1.25% interest per month has an annual percentage rate of
- 12.50%
 - 13.55%
 - 15%
 - none of the above
- _____ 4. Alabama Power has preferred stock that pays an annual dividend of \$9.44. If the security has no maturity, what is its value to an investor who wishes to obtain a 9 percent rate of return?
- \$84.96
 - \$104.89
 - \$95.34
 - \$94.40
- _____ 5. If you owe \$1,200.00, which is the most advantageous way to pay it back assuming a 12% APR discount rate?
- \$100.00 monthly payments over the next twelve months
 - \$300.00 quarterly payments over the next four quarters
 - \$600.00 paid every six months over the next year
 - \$1,200.00 paid after one year
- _____ 6. Which of the following \$1,000 face value bonds has a 10% yield, assuming semiannual coupon payments of 8%?
- 1) a 5 year maturity bond selling for \$964.54
 - 2) a 10 year maturity bond selling for \$875.39
 - 3) a 20 year maturity bond selling for \$828.36
- (1)
 - (2)
 - (3)
 - (2) and (3)
- _____ 7. When interest rates decrease, what happens to the bond prices of seasoned issues (reminder: the coupon rate is fixed at issue)?
- the bond prices decrease
 - the bond prices increase

- c. the bond prices are unaffected
 - d. the bonds will be retired and re-issued at higher coupon rates
- _____ 8. How is preferred stock similar to bonds?
- a. Constant payment
 - b. Pays both principal and interest to investor
 - c. Fixed maturity date
 - d. Both a & c
 - e. All of the above
- _____ 9. Nearly all preferred stock comes with the right to receive all past unpaid dividends before common shareholders can receive any dividends. This right is referred to as:
- a. the preference feature
 - b. the liquidation preference
 - c. the cumulative feature
 - d. voting preference
- _____ 10. The efficient market hypothesis asserts that:
- a. it is virtually impossible to *consistently* pick stocks that perform exceptionally well because all publicly available information is immediately reflected in stock prices
 - b. studying historic patterns of stock price movements will generally identify winning investments
 - c. fundamental analysis performed by individuals often reveals bargains despite the fact that professionals analyze all information as soon as it becomes available.
 - d. all of the above
- _____ 11. The current price of Zebar is \$32.00 and its last dividend was \$.60. What is its return if dividends are expected to grow indefinitely at 8 percent?
- a. 9.88%
 - b. 11.38%
 - c. 18.75%
 - d. none of the above

Problem

12. One year ago a \$1,000 face value, 6% coupon bond was selling for \$1,100. Since then, the market yield has decreased by two percentage points. The bond pays interest semiannually and now has four years to maturity. What is the bond's price today?
14. You have the option of purchasing a \$1,000, 6% coupon bond with interest payable semiannually and a remaining term of 10 years for \$900, or a \$1,000 zero coupon bond with a remaining term of 10 years for \$500. Interest on the zero is also compounded semiannually. Which bond should you buy? Why? (A zero coupon bond pays no coupon interest, only a maturity value.)
15. Janet Lee is considering purchasing shares in DM Designs. The share price is currently \$64. Alternatively, Janet can buy an out of the money call option with a striking price of \$65, that is currently priced at \$2.25. Janet expects the stock price to rise to \$68. What is the difference between the stock's return on investment and the option's return on investment?