THE TIME VALUE OF MONEY IN FINANCE

02

1. An annuity will pay eight annual payments of $100, with the first payment to be received one year from now. If the interest rate is 12% per year, what is the present value of this annuity?

   (A) $496.76.

   (B) $1,229.97.

   (C) $556.38.

2. A 15-year zero-coupon German government bond has an annualized yield of −1.5%. Assuming annual compounding, the price of the bond per €100 of principal is closest to:

   (A) €125.

   (B) €115.

   (C) €105.

3. An investor purchases a stock on January 1. The annual dividend payments for a stock investment for the next four years, beginning on December 31, are $50, $75, $100, and $125. Based on the cash flow additivity principle, the present value of this series of cash flows will be equivalent to the present value of a $50 annuity and the present value of what series of cash flows?

   (A) $0, $0, $125, and $125.

   (B) $75, $50, $25, and $0.

   (C) $0, $25, $50, and $75.

4. Wortel Industries has preferred stock outstanding that paying an annual dividend of $3.75 per share. If an investor wants to earn a rate of return of 8.5%, how much should he be willing to pay for a share of Wortel preferred stock?

   (A) $31.88.

   (B) $44.12.

   (C) $42.10.

5. A bond pays annual coupon interest of £40 and returns its face value of £1,000 in five years. The bond's yield to maturity is 4.5%. Its price today is closest to:

    (A) £946.

    (B) £978.

    (C) £957.

6. An investor purchases a 10-year, $1,000 par value bond that pays annual coupons of $100. If the market rate of interest is 12%, what is the current market value of the bond?

    (A) $950.

    (B) $887.

    (C) $1,124.

7. Assuming a constant rate of growth in dividends, we can estimate an equity share's:

    (A) dividend yield as the sum of its required rate of return and its growth rate.

    (B) growth rate as the sum of its dividend yield and its required rate of return.

    (C) required rate of return as the sum of its dividend yield and growth rate.

8. A financial advisor recommends to her client that he buy a 6-year, $1,000 face value bond that pays annual interest of 5%. The yield to maturity is 4.5%, and the client intends to hold the bond as an investment until it matures. The value of the bond today is closest to:

    (A) $1,000.

    (B) $975.

    (C) $1,025.

9. An investor makes 48 monthly payments of $500 each beginning today into an account that will have a value of $29,000 at the end of four years. The stated annual interest rate is closest to:

    (A) 10.00%.

    (B) 9.00%.

    (C) 9.50%.

10. A perpetual bond with a face value of $100,000 pays annual interest of 5%. The bond is quoted at a yield of 7%. The bond's price is closest to:

    (A) $140,000.

    (B) $71,500.

    (C) $98,100.

11. An investor pays $726.27 for a zero-coupon bond with a face value of $1,000 and maturing in 10 years. Bonds with similar risk profiles and with similar terms yield 3.00%. The yield to maturity for this bond is closest to:
    (A) 3.25%.
    (B) 2.75%.
    (C) 3.00%

12. An analyst is using the constant growth dividend discount model (DDM) to evaluate XYZ stock. The stock is currently trading at $20 per share and recently paid an annual dividend of $1.50. Assuming a constant growth rate of 4.5%, the implied required rate of return on the stock is closest to:
    (A) 12.00%.
    (B) 12.34%.
    (C) 11.68%.

13. An investor spends $365,000 purchasing zero-coupon bonds with a total face value of $500,000 and maturing in 10 years. For the annualized rate of return to be above 3.20%, the bond's price will have to be:
    (A) equivalent to $365,000.
    (B) lower than $365,000.
    (C) higher than $365,000.

14. A bond with a 10-year maturity has a face value of $10,000 and pays annual interest of $600. The bond is issued at a price of $9,500. The bond's yield to maturity will be:
    (A) greater than 6%.
    (B) equal to 6%.
    (C) less than 6%

15. A pure discount instrument with a face value of ¥500 million matures nine years from today and has a current price of ¥350 million. The instrument's annualized yield is closest to:
    (A) 3.3%.
    (B) 4.7%.
    (C) 4.0%.

16. An investor looks at her monthly brokerage statement and notices that the yield to maturity on her 5-year corporate bond with a 4% annual coupon rate has gone from 4.2% last month to 3.8% this month. The statement will reflect a bond price that, over the last month, has:
    (A) decreased.
    (B) remained flat.
    (C) increased.

17. Given a 5% discount rate, the present value of $500 to be received three years from today is:
    (A) $400.
    (B) $432.
    (C) $578.

18. An investor is deciding whether to buy a 1-year bond two years in a row or lock in the rate on a 2-year bond today. The 1-year spot interest rate is 5.25%, and the 2-year spot interest rate is 6.50%. Which of the following statements is most accurate regarding implied forward rates and the investor's options
    (A) The expected rate on a 1-year bond one year from today is equal to 7.76%.
    (B) The forward rate will be between 5.25% and 6.50%.
    (C) The investor is better off locking in the 2-year rate at 6.50%.

19. Assume that one- and two-year risk-free rates are 1.80% and 2.50%, respectively. Using the cash flow additivity principle, the one-year reinvestment rate, one year from now is closest to:
    (A) 2.8%.
    (B) 3.2%.
    (C) 3.5%

20. An equity investor has a required return of 7% and purchases preferred stock with a $50 per share par value and an annual dividend of $3.20. The value of the preferred stock is closest to:
    (A) $46.
    (B) $50.
    (C) $43

21. A stock is expected to pay a dividend next year of $2.40. An analyst expects the dividend to grow at a constant annual rate of 4% and believes investors' required rate of return on the stock is 7%. The analyst will estimate a value for this stock that is closest to:
    (A) $85.60.
    (B) $80.00.
    (C) $83.20.

22. Given investors require an annual return of 12.5%, a perpetual bond (i.e., a bond with no maturity/due date) that pays $87.50 a year in interest should be valued at:
    (A) $70.
    (B) $700.
    (C) $1,093.

23. To determine whether the current price of a common stock is aligned with its intrinsic value, an analyst wants to use the Gordon growth model. To appropriately apply the model, the analyst will need to estimate:
   (A) the dividend to be received next year.
   (B) a fluctuating growth rate assigned to dividends.
   (C) a growth rate that is above the required return.

24. Bill Jones is creating a charitable trust to provide six annual payments of $20,000 each, beginning next year. How much must Jones set aside now at 10% interest compounded annually to meet the required disbursements?
   (A) $154,312.20.
   (B) $87,105.21.
   (C) $95,815.74.

25. Given the following cash flow stream:

End of Year	Annual Cash Flow
1	$4,000
2	$2,000
3	-0-
4	-$1,000

   Using a 10% discount rate, the present value of this cash flow stream is:
   (A) $3,636.00.
   (B) $4,606.00.
   (C) $3,415.00.

26. Assuming the 1-year riskless interest rates on the U.S. dollar and British pound are 3.5% and 4.0% respectively, the forward exchange rate between the two currencies will be different than the spot rate by approximately:
   (A) 0.50%.
   (B) 3.75%.
   (C) 7.50%

27. Compute the present value of a perpetuity with $100 payments beginning four years from now. Assume the appropriate annual interest rate is 10%.
   (A) $683.
   (B) $751.
   (C) $1,000.

28. A 5-year, 8% coupon bond with a par value of $1,000 pays interest annually. The price is $942.50, and the yield to maturity is 9.50%. If the price of the bond moves to $963.75, the yield to maturity will be closest to:

(A) 10.07%.

(B) 8.55%.

(C) 8.93%

29. A share of George Co. preferred stock is selling for $65. It pays a dividend of $4.50 per year and has a perpetual life. The rate of return it is offering its investors is closest to:

(A) 6.9%.

(B) 4.5%.

(C) 14.4%.

30. An investor with USD 1,000,000 is undecided between two mutually exclusive opportunities with the following cash flows:

	Time 0	Time 1	Time 2	Time 3
Opportunity 1	–1,000,000	500,000	500,000	500,000
Opportunity 2	–1,000,000	400,000	500,000	600,000

The investor's required return is 11% per year. Which opportunity should the investor choose?

(A) The investor should be indifferent between the two opportunities.

(B) The investor should choose Opportunity 1.

(C) The investor should choose Opportunity 2.

31. A pure discount instrument with a face value of ¥100 million matures 12 years from today. If its yield to maturity is 3%, its price today is closest to:

(A) ¥71 million.

(B) ¥70 million.

(C) ¥72 million.

32. Using a constant growth dividend discount model (DDM), an analyst assumes a required return on equity of 9.75%. The current stock price is $30 per share, and the next period's dividend is $2.40 per share. The constant growth rate implied in the model is closest to:

(A) 1.75%.

(B) 1.89%.

(C) 1.83%

33. An investment product promises to pay a lump sum of $25,458 at the end of 9 years. If an investor feels this investment should produce a rate of return of 14%, compounded annually, the present value is closest to:
    (A) $9,426.00.
    (B) $7,618.00.
    (C) $7,829.00.

34. An investor is choosing between two possible investments. Both have identical future cash flows in all situations, but the investor notices a slight discrepancy in price between the two. What action will this investor take based on the no-arbitrage principle?
    (A) Wait for the prices to further diverge, then sell the higher-priced investment.
    (B) Do nothing, as there cannot be a price divergence based on the rule.
    (C) Act quickly by buying the lower-priced investment, as the prices will quickly converge.

35. Abeta's stock is trading at $47. Abeta just paid a dividend of $1.50, and markets assume a constant growth rate in dividends of 4%. Abeta's required return on equity is closest to:
    (A) 8.1%.
    (B) 6.5%.
    (C) 7.3%.

36. A bond pays annual coupon interest of £60 and returns its face value of £1,000 in seven years. The bond's price today is £1,045. Its yield to maturity is closest to:
    (A) 5.2%.
    (B) 6.8%.
    (C) 6.0%

37. A loan of $15,000 is to be paid off in monthly payments over 5 years at 12% annual interest. What is the amount of each payment?
    (A) $334.
    (B) $1,802.
    (C) $4,161.

38. A pure discount instrument with a face value of €1 million matures eight years from today. If its yield to maturity is –1.5%, its price today is closest to:
    (A) €1.13 million.
    (B) €0.98 million.
    (C) €0.89 million.