95. Beachballs, Inc., expects abnormally high earnings for the next three years due to the forecast of unusually hot summers. After the 3-year period, their growth will level off to its normal rate of 6%. Dividends and earnings are expected to grow at 20% for years 1 and 2 and 15% in year 3. The last dividend paid was $1.00. If an investor requires a 10% return on Beachballs, the price she is willing to pay for the stock is *closest* to:
A. $26.00.
B. $36.50.
C. $50.00.

96. If stock markets are semistrong-form efficient, a portfolio manager is *least likely* to create value for investors by:
A. monitoring clients' needs and circumstances.
B. allocating invested funds among asset classes.
C. analyzing financial statements to select undervalued stocks.

Questions 97 through 110 relate to Fixed Income. (21 minutes)

97. Which of the following statements about how various embedded options benefit the issuers or the bondholders is *least accurate*?
A. The accelerated sinking fund provision favors the issuers.
B. The conversion provision favors the bondholders.
C. The option-adjusted spread measures the spread, including the effect of the embedded option.

98. For an option-free bond, what are the effects of the convexity adjustment on the magnitude (absolute value) of the approximate bond price change in response to an increase in yield and to a decrease in yield?

	Decrease in yield	Increase in yield
A.	Increase in magnitude	Decrease in magnitude
B.	Increase in magnitude	Increase in magnitude
C.	Decrease in magnitude	Increase in magnitude

99. Which of the following statements about different types of bonds is *least likely* correct?
A. Municipal bonds are traded primarily on the New York Stock Exchange.
B. Tax-backed bonds are backed by the full faith and credit of the issuer.
C. Government agency issues of federally related institutions are typically backed by the full faith and credit of the U.S. government.

100. A 10%, 10-year bond is sold to yield 8%. One year passes, and the yield remains unchanged at 8%. Holding all other factors constant, the bond's price during this period will have:
A. increased.
B. decreased.
C. remained constant.

101. An investor purchases a $1,000 face, 4.50%, semiannual coupon bond with seven years to maturity priced to yield 6.50% for $888.94. The reinvestment income that must be generated over the life of the bond for the investor to realize a yield of 6.5% is *closest* to:
A. $72.
B. $76.
C. $80.

102. Exactly one year ago, an investor purchased a $1,000 face value, zero-coupon bond with 11 years remaining to maturity. The YTM (semiannual) was 8.0%. Now, one year later, with market rates unchanged, an investor purchases an annuity that pays $40 every six months for 10 years. The combined value of the two investments based on the 8% semiannual yield is *approximately*:
A. $966.
B. $1,000.
C. $1,456.

103. An analyst gathered the following information about a 15-year bond:
- 10% semiannual coupon.
- Effective duration of 7.6 years.

If the market yield rises 75 basis points, the bond's approximate price change is a:
A. 5.4% decrease.
B. 5.4% increase.
C. 5.7% decrease.

104. Which of the following relationships is *least accurate*?
A. Premium bond: nominal yield > current yield; current yield > yield to maturity.
B. Discount bond: coupon rate < yield to maturity; nominal yield < yield to maturity.
C. Discount bond: current yield < yield to maturity; nominal yield > yield to maturity.

105. An investor most concerned with reinvestment risk would be *least likely* to:
A. prefer a noncallable bond to a callable bond.
B. prefer a lower coupon bond to a higher coupon bond.
C. eliminate reinvestment risk by holding a coupon bond until maturity.

106. For an asset-backed security (ABS), a special purpose vehicle:
A. sells an asset to the issuing corporation, which then proceeds to issue the ABS.
B. is a legal entity used to separate assets used as collateral from those of the company seeking financing through an ABS.
C. acts as an intermediary that purchases an asset from the company issuing an ABS and then resells it to obtain sufficient liquid funds to provide collateral for the ABS.

107. The following interest rate information is observed:

	Spot Rates
1 year	10%
2 years	11%
3 years	12%

Based on this data, the 2-year forward rate one year from now is *closest* to:
A. 12%.
B. 13%.
C. 14%.

108. Which of the following statements about theories of the yield curve is *most likely* correct?
A. A liquidity preference is not consistent with a flat term structure of interest rates.
B. The pure expectations theory suggests that an upward-sloping term structure of interest rates is a consequence of investors expecting short-term rates to remain unchanged for a period of time, followed by investors expecting short-term rates to rise for a period of time.
C. The liquidity preference theory suggests that a downward-sloping term structure of interest rates is due to declining expected short-term rates, and although there is a maturity premium to consider, it is not large enough to offset the expected decline in short-term rates.

109. An analyst makes the following two statements about putable bonds:

Statement 1: As yields rise, the price of putable bonds will fall more quickly than similar option-free bonds (beyond a critical point) due to the decline in value of the embedded put option.

Statement 2: As yields fall, the price of putable bonds will rise more quickly than similar option-free bonds (beyond a critical point) due to the increase in value of the embedded put option.

Are the analyst's statements correct?
A. Both statements are correct.
B. Neither statement is correct.
C. Only one of the statements is correct.

110. An investor who is calculating the arbitrage-free value of a Treasury security should discount each cash flow using the:
A. risk-free rate.
B. Treasury spot rate that is specific to its maturity.
C. Treasury note yield that is specific to its maturity.

Questions 111 through 116 relate to Derivatives. (9 minutes)

111. The payoff to the long position in a forward rate agreement (FRA) can be duplicated by which of the following combinations of interest rate options?

	Interest rate call	Interest rate put
A.	Long	Long
B.	Long	Short
C.	Short	Long

112. Which of the following statements about equity forward contracts is *least accurate*?
A. The primary risk managed by equity forwards is the uncertainty about dividend yields.
B. An asset manager can effectively lock in the price of a specific stock at a particular point in time if he can arrange for the sale of a forward contract on the stock through a reputable dealer.
C. A pension fund manager who wants to sell a specific group of stocks in the future can accomplish this either by selling a forward contract on each of the stocks, or by selling a single forward contract on the portfolio of stocks she wants to sell.

95. **B** This is a supernormal growth stock valuation problem.

Step 1: Find the dividends in the supernormal growth period.

$D_1 = 1.00(1.20) = \$1.20$; $D_2 = 1.2(1.2) = \$1.44$; $D_3 = 1.44(1.15) = \$1.656$

Step 2: Use the constant growth model to find the price at the end of period 2.

$$P_2 = \frac{D_3}{k-g} = \frac{1.656}{0.10-0.06} = \$41.40$$

Step 3: Discount all of the cash flows back to time zero.

$$P_0 = \frac{D_1}{(1+k)} + \frac{D_2}{(1+k)^2} + \frac{P_2}{(1+k)^2} = \frac{1.20}{1.10} + \frac{1.44}{(1.10)^2} + \frac{41.40}{(1.10)^2} = \$36.50$$

(Study Session 14, LOS 60.e)

96. **C** Semistrong-form market efficiency implies that fundamental analysis of publicly available information will not generate abnormal returns on average. Portfolio managers should help quantify a client's risk tolerances and return needs, offer portfolio policies and strategies to meet these needs, and construct a portfolio by allocating funds to appropriate asset classes. Portfolio managers can also create value by diversifying their clients' portfolios globally to reduce risk, monitoring and evaluating changing capital market conditions, monitoring their clients' needs and circumstances, and rebalancing their clients' portfolios when necessary. (Study Session 13, LOS 57.e)

97. **C** The OAS is a measure of the yield spread over Treasury spot rates *without* the option. (Study Session 15, LOS 60.e, 63.e and Study Session 16, LOS 66.g)

98. **A** Option-free bonds have positive convexity and the effect of (positive) convexity is to increase the magnitude of the price increase when yields fall and to decrease the magnitude of the price decrease when yields rise. (Study Session 16, LOS 67.h)

99. **A** Municipal bonds are traded in the over-the-counter market supported by municipal bond dealers across the country. (Study Session 15, LOS 63.d, g)

100. **B** The bond is sold at a premium. As time passes, the bond's price will move toward par. Thus, the price will fall.

N = 10; FV = 1,000; PMT = 100; I = 8; CPT → PV = \$1,134

N = 9; FV = 1,000; PMT = 100; I = 8; CPT → PV = \$1,125

(Study Session 16, LOS 65.d)

101. **B** Semiannual compound rate is $\frac{0.065}{2} = 0.0325$. Ending value must be $\$888.94(1.0325)^{14} = \$1,391.02$ in order to realize a 6.5% (bond-equivalent) yield over the bond's life.

\$1,391.02
–1,000.00 face value at maturity
391.02
–315.00 total coupons (14 × 22.50)
76.02 reinvestment income required

(Study Session 16, LOS 66.c)

102. **B** The two investments combine to form a 10-year, $1,000 face value, 8.0% semiannual coupon bond that would sell at par because the YTM (expressed as a BEY) equals the coupon rate. Thus the combined value is $1,000. The zero-coupon bond is worth $\frac{1{,}000}{1.04^{20}} = \$456.39$, and the annuity payments are worth $543.61 (N = 10 × 2 = 20, PMT = 40, I/Y = 8/2 = 4, FV = 0, PV = –543.61).

(Study Session 16, LOS 65.c)

103. **C** $\Delta P/P = -D_{effective}\Delta i$

$\Delta P/P = -7.6(+0.0075) = -0.057$, or -5.7%

(Study Session 16, LOS 67.d)

104. **C** The nominal yield (another term for the coupon yield) is less than the yield to maturity for a discount bond. (Study Session 16, LOS 66.b)

105. **C** The key term here is *coupon bond*. While an investor in a fixed-coupon bond can usually eliminate interest rate risk by holding a bond until maturity, the same is not true for reinvestment risk. The receipt of periodic coupon payments exposes the investor to reinvestment risk. A noncallable bond reduces reinvestment risk by reducing the risk of repayment. Thus, an investor most concerned with reinvestment risk would prefer a noncallable bond to a callable bond. Since lower coupon bonds have lower reinvestment risk, this same investor would prefer a lower coupon bond to a higher coupon bond. (Study Session 15, LOS 62.i)

106. **B** A special purpose vehicle is a legal entity to which the assets used as collateral in an ABS issue are sold. This transaction separates the assets backing the ABS from the other assets of the company that creates the SPV. (Study Session 15, LOS 63.i)

107. **B** $${}_2f_1 = \left[\frac{(1+z_3)^{1+2}}{(1+z_1)^1}\right]^{1/2} - 1 = \left[\frac{(1+12)^3}{(1.10)}\right]^{1/2} - 1 = 13.01\%$$

Note: $\frac{(3\times12)-(1\times10)}{2} = 13$ (Study Session 16, LOS 66.h)

108. **C** A flat term structure could be explained according to the liquidity preference theory as a case where investors expect short-term rates to decline slightly, coupled with a maturity premium that exactly offsets the downward pressure contained in investor expectations. The pure expectations theory makes no specific mention of the fact that an upward-sloping term structure is a consequence of investors expecting short-term rates to remain unchanged for a period of time followed by investors expecting short-term rates to rise for a period of time. All this theory says is that an upward-sloping term structure can be explained by investors believing that future short-term rates will rise. Finally, the liquidity preference theory attempts to explain the term structure according to two factors. These are expectations about future interest rates and a maturity premium to compensate for interest rate risk. If the term structure is declining, this could be explained simply by investor expectations of declining future short-term rates coupled with a maturity premium that is not large enough to offset the downward pressure on interest rates due to investor expectations. (Study Session 15, LOS 64.c)

109. **B** Both statements are incorrect. As yields rise, the value of the embedded put option in a putable bond increases and (beyond a critical point) reduces the decline in the value of the bond compared with a similar option-free bond. As yields fall, the value of the embedded put option decreases, and (beyond a critical point) the putable bond behaves much the same as a similar option-free bond since the embedded put option has little or no value. (Study Session 16, LOS 67.b)

110. **B** To calculate a Treasury bond's arbitrage-free value, each cash flow is discounted using the Treasury spot rate that is specific to the maturity of the cash flow. (Study Session 16, LOS 65.f)

111. **B** The holder of a long position in an FRA receives cash if the reference rate is greater than the rate specified in the contract on the expiration date, or pays cash if the reference rate is less than the contract rate. Combining a long interest rate call with a short interest rate put results in the same payoff pattern. A long interest rate call option has a positive value (receives cash) if the reference rate is greater than the strike rate at expiration. The holder of a short interest rate put option must pay cash if the reference rate is less than the strike rate at expiration. (Study Session 17, LOS 71.f)

112. **A** The variability of prices in general is significantly larger than the variability of (uncertainty about) dividend yields, and hence managing price risk is of primary importance, while the uncertainty about dividend yields is of secondary importance. The remaining statements are correct. (Study Session 17, LOS 69.d)

113. **C** This is an out-of-the-money covered call. The net cost is \$37 (40 – 3) and the maximum payoff on the position is the exercise price, \$42. Thus, the maximum profit is \$5. (Study Session 17, LOS 73.b)

114. **B** The buyer of an option (long position) is not obligated to perform any action in the future. The writer of a call option (short position) has an obligation to sell the underlying asset to the option holder if the holder exercises the option. The party taking either side of a swap has entered into a forward commitment. (Study Session 17, LOS 68.b, c)

115. **C** If the margin account balance falls below the maintenance margin level, the account must be brought back up to the initial margin amount. (Study Session 17, LOS 70.d)

116. **C** An American-style call option must be worth at least as much as an otherwise identical European-style call option and has the same minimum value. This fact alone eliminates choice B. Since the American-style call is in the money and therefore must be worth more than the \$6 difference between the strike price and the exercise price, you can eliminate response A and select response C without calculating the exact minimum value, which is given by:

$$\max[0, S_t - X / (1 + RFR)^{T-t}] = \max [0, 86 - 80 / (1.03)^{3/12}] = \$6.59$$

(Study Session 17, LOS 71.k)

117. **B** Gains and losses that result from entering into a new, longer-dated futures contract as previous contracts expire or are closed out depend on whether the contract is in contango (futures price greater than spot price) or backwardation (futures price less than spot price). Collateral yield depends on the yield on T-bills posted as collateral (margin). Contract yield is not defined as any particular yield measure. (Study Session 18, LOS 75.b)