****BEGINNING OF COURSE 6****
AFTERNOON SESSION
Beginning With Question 8

8. *(4 points)* Describe the passive buy-and-hold and the quasi-passive indexation portfolio management strategies used for fixed-income investments.

9. *(6 points)* You are given the following information:

Projected liability cash flows:

Year 1	Year 2	Year 3	Year 4	Year 5
43	123	214	25	275

Available assets for investment:

- 2 year bond with annual coupon of 5%
- 3 year bond with annual coupon of 8%
- 5 year bond with annual coupon of 10%

Face amount of each bond: 100
Current market yield curve: 7% for all durations

Calculate the initial cost to cash flow match the projected liability cash flows utilizing the assets listed above.

10. *(5 points)*

(a) Describe the features of collared floating rate securities.

(b) Describe price volatility characteristics of collared floaters and compare them to those of the collared inverse floaters.

(c) Describe the risk to an investor of investing in such a security.

11. *(12 points)* You are given the following securities:

60-day T-bill:	face amount	1000
150-day T-bill:	face amount	1000
	current price	975
Stock of ABC Corporation:	current price	25
	dividend rate	12%, payable continuously
	The amount of dividend payment is constant, regardless of changes in stock price	

European call option on the ABC stock:

current price	1
strike price	30
time to exercise date	60 days
d_1	0.7

European put option on the ABC stock:

strike price	30
time to exercise date	60 days

Futures contract:	underlying security	90-day T-bill
	time to delivery date	60 days
	face amount	1000
	current price	984

Cumulative normal distribution:

z	–1.4	–0.7	0	0.7	1.4
$N(z)$	0.0808	0.242	0.5	0.758	0.9192

(a) Calculate the current market price of the put option.

(b) Demonstrate that a market consisting of the 60-day T-bill, the put option, and the stock is arbitrage free over one period. The period is 60 days, and the stock price at the end of 60 days will be either 21, 30, or 36.

Show all work.

12. *(4 points)* Outline the contents of an investment policy in an asset/liability management context in accordance with the CIA guidance note.

13. *(4 points)* The issuer of a callable bond is considering issuing a new 10-year callable bond on July 1, 2001 to refinance its outstanding debt.

You are given the following with respect to the outstanding debt:

- Issue date: July 1, 1981
- Maturity date: July 1, 2011
- Annual coupon rate: 12%
- Call price on July 1, 2001 110% of par value

You are also given the following with respect to the callable debt issuer:

- The tax rate is 35%
- The expenses incurred for calling the existing bond and issuing the new bond would total 0.50% of par value
- Can issue a new 10-year callable bond with an 8.5% annual coupon

(a) Explain the risks of the call provision to an investor in callable debt.

(b) Recommend whether the issuer should refinance its debt.

Show all work.

14. *(5 points)* Your company is considering various investments to support a newly issued block of 5-year, 7% GIC's which pays a benefit only at maturity. One of these investments is a callable bond with the following features:

Maturity:	10 years
Call Protection Period:	3 years
Call Price:	100
Option Adjusted Spread (OAS):	0.50%
Effective duration:	5 years
Current market price of the callable bond:	104
Coupon:	8% semi-annual

- The current market price of a 10-year semi-annual 8% non-callable bond is 106
- The current market price of a 3-year semi-annual 8% non-callable bond is 107

(a) Calculate the value of the embedded call option.

(b) List the elements which affect the value of the embedded call option.

(c) Describe OAS and how it is used as an indicator of relative value.

(d) Assess the suitability of the callable bond to support your company's newly issued GIC block.

****END OF COURSE 6****