Test 1

- Due Feb 10 at 5pm
- Points 70
- Questions 7
- Available Feb 10 at 3:30pm - Feb 10 at 5pm 1 hour and 30 minutes
- Time Limit 75 Minutes

This quiz is no longer available as the course has been concluded.

Attempt History

	Attempt	Time	Score
LATEST	[Attempt 1](#)	66 minutes	60 out of 70

Score for this quiz: 60 out of 70
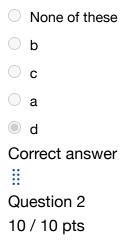Submitted Feb 10 at 4:36pm
This attempt took 66 minutes.

Wrong answer

⋮⋮

Question 1
0 / 10 pts

Consider two zero-coupon Treasury bonds with 7-year and 1-year to maturity with the same face value. Which of the followings best describe their relationship?

a. The yields of these two bonds are negatively correlated

b. The 1-year zero-coupon bond price is traded at par (i.e price = face value)

c. The 7-year zero-coupon bond is traded at a higher price than that of the 1-year bond

d. The yield of the 7-year bond is higher than the yield of the 1-year zero bond

○ None of these

○ b

○ c

○ a

◉ d

Correct answer

⋮⋮

Question 2

10 / 10 pts

Suppose that you have $10,000 in the bank. The interest rate is 5% per year compounded annually.

You plan to add $5,500 at the end of each year.

How long will it take have $30,000 in savings if you withdraw $2,000 in 1 year, $2,500 in 2.5 years

and 1000 in 3 years from today?

○ 2.9 years

◉ 4.1 years

○ 5,2 years

○ 3.4 years

⋮⋮

Question 3

10 / 10 pts

You have $100 to invest. The following three investment vehicles are available.

Investment 1: Every dollar invested now yields $0.15 a year from now, and $1.50 three years from now.

Investment 2: Every dollar invested now yields $0.30 a year from now and $1.25 two years from now.

Investment 3: Every dollar invested one year from now yields $2.00 three years from now.

During each year leftover cash yields nothing. The most in each investment should be $60.

How should you invest so as to maximize the cash three years from now?

Upload file or code.

Question 4

10 / 10 pts

An insurance company has to pay out $60,000 every year for the next 6 years.

The bonds shown are available to trade.

Bond (FV=100)	Coupon (annual)	Term	Price ($)
1	6%	1 year	97
2	8%	3 years	102
3	5%	4 years	95
4	4%	5 years	93
5	0%	6 years	75.5

Find the cheapest solution to the liability problem.

Excess funds carry over to the next year without any interest.

Upload file or code.

Question 5

10 / 10 pts

Bonds A, B, C, D, E are for sale. There is 3 units of each bond for sale. The following bids have come in:
- {(A), $8}

- {(B, C, E), $6}
- {(A, E), $4}
- {(C, E), $10}
- {(D, E), $5}
- {(A, B), $7}
- {(A, D), $6}

How should you allocate the bonds to maximize the revenue?

Upload file or code.

⤓ **Exam1-Q5.xlsx (https://gatech.instructure.com/files/59583883/download)**

Correct answer

⠿

Question 6

10 / 10 pts

John has just started working and he is going to save $2500 a year for the first 4 years.

Then he hopes to get promoted and save a reasonable amount every year for the next 15 years. These are his prime working years.

After that he will begin to wind down and save $4000 for the next 5 years and finally $1200 for the next 3 years after which he will retire.

He wants to retire and spend $60,000 per year for as long as he needs (perpetuity).

The rate is assumed to be 4% throughout. How much should he save during his prime working years?

○ $72,314

○ $45,345

○ $62,514

◉ $52,756

Correct answer

⠿

BlackRock has a bond portfolio that is funding the retirement of a senior community.

The value of the bond portfolio is $10 million and the modified duration is 10.

BlackRock wants to hedge the portfolio using a 12% coupon bond with a Face Value of $100, with 10 years to maturity, and a YTM of 7%.

How many of these bonds are needed?

○ Short 125,628 bonds

◉ Short 115,648 bonds

○ Long 115,648 bonds

○ Long 125,628 bonds

Quiz Score: 60 out of 70