Practice Exam 1 Morning Session Question Breakdown

Question	Topic	Minutes
1	Private Wealth Management	19
2	Private Wealth Management and Asset Allocation	26
3	Trading, Monitoring, and Rebalancing	23
4	Behavioral Finance	18
5	Portfolio Management - Institutional	10
6	Portfolio Management - Institutional	11
7	Asset Allocation	14
8	Asset Allocation	14
9	Equity	21
10	Performance Evaluation/GIPS	24
	Total	**180**

Practice Exam 1 Score Sheet

MORNING SESSION		
Question	**Maximum Points**	**Your Estimated Score**
1A	2	
1B	6	
1C	6	
1D	3	
1E	2	
2A	5	
2B	6	
2C	7	
2D	4	
2E	4	
3A	4	
3B	12	
3C	4	
3D	3	
4A	10	
4B	3	
4C	5	
5A	7	
5B	3	
6A	4	
6B	4	
6C	3	
7A	5	
7B	6	
7C	3	
8A	5	
8B	5	
8C	4	
9A	4	
9B	6	
9C	6	
9D	5	
10A	3	
10B	2	
10C	3	
10D	4	
10E	9	
10F	3	
Total	180	

AFTERNOON SESSION		
Question	**Maximum Points**	**Your Estimated Score**
1–6	18	
7–12	18	
13–18	18	
19–24	18	
25–30	18	
31–36	18	
37–42	18	
43–48	18	
49–54	18	
55–60	18	
Total	**180**	

Exam 1
Morning Session

QUESTION 1 HAS FIVE PARTS FOR A TOTAL OF 19 MINUTES

Jane Guthrie is a social media coach. For several years she has been exclusively retained by a financially stable public corporation to provide support to its executives and advice in designing the company's social media message and presentation strategy. She is 36 years old, believes her skills are highly marketable and, if needed, she could find comparable employment elsewhere. However, her relationship with the company is on a one-year employment contract. Her goal is to retire at age 58.

Guthrie has never been married, but 10 years ago, she accepted sole responsibility for her sister's two children when her sister and the sister's husband were killed in a car accident. A relatively substantial trust was funded by the sister's life insurance and has provided for the childrens' needs through four years of college. Both children are quite gifted and will finish their undergraduate college education in a few years. Guthrie plans to establish an additional trust to provide for postgraduate education needs. She would like to establish a new trust and contribute $175,000 to the new trust within the next year.

Guthrie has a moderately aggressive stock and bond portfolio held in a tax-exempt account and worth USD 450,000. The funds were accumulated from after-tax contributions, and any withdrawals made before age 60 would be subject to a very high tax penalty.

Guthrie also has USD 400,000 in a fully taxable portfolio. Included in the portfolio is USD 200,000 of money market assets. Guthrie is in the 28% income tax bracket.

Guthrie has annual after-tax employment income of USD 150,000 and living expenses of USD 100,000. She plans to contribute the difference to her tax-exempt portfolio annually up to the limit allowed. The balance will go to her taxable portfolio at the end of each year.

At retirement Guthrie estimates she will need USD 2,000,000.

A. **State** and **discuss** one factor that reduces Guthrie's risk objective.

(2 minutes)

B. **Discuss** Guthrie's:

i. Time horizon.
ii. Legal needs.
iii. Liquidity needs.

(6 minutes)

C. **Calculate** the required annual return required to meet Guthrie's goals. **Show** your calculations.

(6 minutes)

D. Assuming that capital gains make up most of stock returns, are taxed at a lower rate than income return, and Guthrie is a passive investor planning to hold all securities for long periods; **state** whether Guthrie would most likely be better off to hold stocks rather than bonds in her taxable or tax-exempt portfolio and **explain** why. To answer the question, assume stocks must be held in one account and bonds in the other.

(3 minutes)

E. Assume that Guthrie plans to accumulate a USD 50,000 emergency cash reserve. **Explain** whether this should be held in her tax-exempt or taxable portfolio if the goal is to minimize taxes on the cash at withdrawal.

(2 minutes)

QUESTION 2 HAS FIVE PARTS FOR A TOTAL OF 26 MINUTES

Six years have passed, and Jane Guthrie is now 42 years old. She has had both successes and disappointments in her career. Shortly after her initial efforts at determining a required return, she lost her job. Due to a severe recession, she was underemployed for a couple of years. This occurred immediately after she funded the education trust for the children. Both children completed their initial and postgraduate education and are successfully employed. Under the terms of both trusts, the small remaining trust funds will be distributed to them at age 28.

While she was underemployed, she found a few part-time opportunities and returned to school for an MBA. During that period, she substantially reduced her portfolio. Three years ago she took a position with a small private, startup company as Senior Vice President for product marketing. This makes her an important executive in executing, though not setting, company strategy. While her immediate compensation is moderate and she has been unable to add to her portfolio from savings, she has received restricted stock grants in the company of 50,000 shares in lieu of direct monetary compensation.

She consults Kate VonLee, CFA, to assist her in developing a financial plan. Her tax-exempt portfolio is now worth USD 350,000, and her taxable portfolio is worth only USD 200,000 due to the substantial withdrawals made for living expenses and the MBA. Guthrie excluded her employer stock from both these figures. Her combined asset allocation, excluding the employer stock, is shown in Exhibit 1. Guthrie admits that her confidence in making sound financial decision was shaken over the last few years and wonders if she would have been better off to have pursued full-time work instead of an MBA. She also expresses concern that so much of her net worth is in employer stock and would like to be able to diversify that position.

Exhibit 1. Current Portfolio Allocation

Asset Class	*Portfolio Allocation*
Money Market	13%
Small-cap stock	30%
Large-cap stock	25%
Domestic bonds	32%

*Employer stock is excluded but has a value equal to 40% of the combined portfolio.

A. **Comment** on how Guthrie's decision to pursue the MBA affected her allocation between financial and human capital over the last few years and **explain** how it could have increased her total wealth.

(5 minutes)

B. **Determine** and **explain** the asset class in Guthrie's portfolio the employer stock is most similar to and which risk bucket—personal, market, or aspirational—the stock would fall into. **Recommend** from a tactical and strategic perspective what should be done with the stock. **Explain** why.

(6 minutes)

C. Guthrie has heard about the concept of monetizing concentrated single-asset positions and asks VonLee to **explain** the following strategies and **recommend** the one that is most suitable to her situation. Assume that rumors Guthrie has heard that the company will go public are true. **Support** your recommendation with *two* reasons related directly to Guthrie's situation.

i. Corporate estate tax freeze.
ii. Collateralized bank loan.

(7 minutes)

D. Fifteen years later, Guthrie is 57 years old and considering retirement. She again turns to VonLee seeking advice on whether she has the resources to retire now or if she should continue to work for another three years. VonLee runs Monte Carlo simulations to present to Guthrie. **Explain** two benefits of using Monte Carlo analysis to make this decision and **explain** what reports VonLee should show Guthrie to help Guthrie make the decision to retire now or in three years.

(4 minutes)

E. When Guthrie retires, **state** and **explain** how her portfolio return and risk objective are most likely to change.

(4 minutes)

QUESTION 3 HAS FOUR PARTS FOR A TOTAL OF 23 MINUTES

Ken Johnson manages global bond portfolios and has been asked to prepare a briefing paper relating to order execution and trading strategies. In the paper he plans to cover the role of brokers and dealers, the four components of implementation shortfall cost, and some typical situations where market or limit orders would be used.

A. **Contrast** the role of brokers versus dealers and **discuss** how each is compensated.

(4 minutes)

B. **Explain** the four components of implementation shortfall, **circle** whether each can be a cost, negative cost, or either. **Circle** whether each is directly observable or must be inferred from a benchmark price.

Answer Question 3-B in the template provided.

(12 minutes)

Template for Question 3-B

Component	Explain	Cost, negative cost, or can be either (circle one)	Observable or inferred (circle one)
Market impact		Cost Negative Cost Can be Either	Observable Inferred
Delay		Cost Negative Cost Can be Either	Observable Inferred
Unrealized gain/loss		Cost Negative Cost Can be Either	Observable Inferred
Explicit cost		Cost Negative Cost Can be Either	Observable Inferred

C. Johnson reviews some recent trades he made in his portfolios.

Trade 1: After considerable proprietary fundamental research, Johnson determines a corporate bond is likely to be substantially downgrade. The bond is only moderately liquid.

Trade 2: A portfolio receives a substantial inflow of funds and in order to quickly match the duration of the portfolio's benchmark, U.S. Treasuries are purchased.

Determine and **explain** whether each trade should have been a market or limit order.

(4 minutes)

D. Johnson also decides to include a brief discussion of why he believes implementation shortfall is superior to volume weighted average price (VWAP) to avoid gaming. **Explain** how gaming can avoid showing a cost in VWAP analysis and how gaming would most likely affect the component costs of implementation shortfall.

(3 minutes)

QUESTION 4 HAS THREE PARTS FOR A TOTAL OF 18 MINUTES

Thomas Simms is a client manager for Bueno Capital Management and has become dissatisfied with traditional capital market theory. He believes it should be complemented with behavioral finance to gain better insights into market and client behavior. Simms is reviewing profiles he has prepared on several of his clients.

- Client 1 generally calls Simms after receiving each of his quarterly reports and suggests Simms reallocate funds out of stocks that have risen into stocks that have declined.
- Client 2 is very wealthy and likes to explain to Simms that he was too conservative when he started his career but as his wealth increased, he took more risk and that is what led to his ultimate financial success. Now he just wants to protect his capital and enjoy life.
- Client 3 used to continually object when Simms recommended increasing the equity allocation until Simms began to point out the bonds in the portfolio provide an investment base, and the equity could ultimately improve the client's long-term standard of living without risking his lifestyle.
- Client 4 is frustrating to deal with because he is only willing to consider new stocks of domestic companies but will not consider international companies, even in other highly developed markets.
- Client 5 insists that Simms use ETFs for her domestic large-cap stock allocations but use individual securities for her small-cap growth stocks.

A. For each of Simms's comments, **circle** the concept best exhibited by that client. Each concept must be used only once, and each concept must be matched to a client.
   - Bounded Rationality
   - Efficient Market Hypothesis
   - Friedman-Savage Double Inflection Function
   - Goal Based Investing
   - Loss Aversion

Answer Question 4-A in the template provided.

(10 minutes)

Template for Question 4-A

Client	Concept best exhibited (circle one)
1	Bounded Rationality Efficient Market Hypothesis Friedman-Savage Double Inflection Function Goal Based Investing Loss Aversion
2	Bounded Rationality Efficient Market Hypothesis Friedman-Savage Double Inflection Function Goal Based Investing Loss Aversion
3	Bounded Rationality Efficient Market Hypothesis Friedman-Savage Double Inflection Function Goal Based Investing Loss Aversion
4	Bounded Rationality Efficient Market Hypothesis Friedman-Savage Double Inflection Function Goal Based Investing Loss Aversion
5	Bounded Rationality Efficient Market Hypothesis Friedman-Savage Double Inflection Function Goal Based Investing Loss Aversion

B. Simms is puzzled when he comes across a reference to myopic loss aversion. **Explain** any ways in which loss aversion and myopic loss aversion are similar and any ways in which they differ.

(3 minutes)

Simms has a new client. In their first meeting, Simms learned his client was a middle-level corporate finance executive for a large corporation. The client is 55 years old, and his wife is 52. Both are in good health. In the meeting the client spent considerable time bragging about the successful strategies used in the corporation and how his personal role at the company led to the large increase in value of his stock options. When the corporation began to pursue international diversification, the client shifted a large part of his wealth into emerging market funds and tripled his money. He then further leveraged these gains with call options. He expects Simms to continue these excellent returns.

In the second meeting, Simms and the client reviewed the client's total financial situation and developed a set of portfolio objectives and constraints. The client expressed strong views that the return needs were the minimum he could accept, and the asset allocation they discussed was perfect.

After that meeting Simms reviews his firm's capital market expectations, has his assistant prepare a set of mortality table projections, and Simms estimates the client's core capital requirements to be 20% higher than the client's assets.

C. Simms is preparing for the third client meeting. **Determine** whether the client is mostly exhibiting cognitive errors or emotional biases in his thinking and **support** this with facts from the client meetings. **Recommend** and **explain** whether Simms should accommodate the client's views on required return and asset allocation or educate the client on the benefits of revising the investment plan.

(5 minutes)

QUESTION 5 HAS TWO PARTS FOR A TOTAL OF 10 MINUTES

The Astney Foundation was funded in 1951 by the heirs of a large brewing fortune. The foundation's sole purpose is to support training for gifted young skiers in the United States. Yearly grants are provided to children between the ages of 9 and 15 to cover training, living accommodations, and education at Astney Mountain School. The $25 million portfolio is expected to generate a real return of 4% and cover operating expenses of 0.75%. General inflation is estimated at 2.5%, while costs covered by the foundation are expected to increase at 3.5%. The foundation is tax exempt, subject to no minimum payout requirement, and the trustees have expressed a strong desire to generate a 3% annual income return.

A.

- i. **State** the return objective of the foundation.
- ii. **Calculate** the required annual nominal return requirement. **Show** your calculations.
- iii. **Calculate** the dollar amount that can be distributed over the next year that is consistent with the foundation's long-term goals. **Show** your work.

(7 minutes)

B. **Discuss** how inflation and the foundation's time horizon affect its risk objective. **State** and **explain** how *one* other factor from the case information directly affects the risk objective.

(3 minutes)

QUESTION 6 HAS THREE PARTS FOR A TOTAL OF 11 MINUTES

Silts Life Insurance Company offers a variety of life insurance and savings plans. Due to an extended period of low interest rates and customer dissatisfaction with returns on savings, the marketing department has developed a new combination life insurance and guaranteed investment product (GIC). Customers receive five years of life insurance coverage as well as a 3% fixed rate on a five-year GIC. However, the rate will increase after two years if 5-year, A-rated bond rates increase. The rate will reset upward by the same amount as the increase in 5-year, A-rated bonds. The product has led to a 20% increase in company liabilities over the last two years, and the growth is expected to continue.

Jim Silts, CEO, is firmly convinced that interest rates are going to start rising, making the product a winner for customers and the company. To fund the liabilities and match duration, he has directed the investment department to purchase 5-year, fixed-rate bonds. Silts has also mandated the portfolio be managed in total and not segmented, explaining they offer a combined product, so viewing the portfolio in aggregate is more appropriate.

A. Assuming that Silts is correct in his interest rate expectations, **explain** the likely affect on the company's earnings and surplus.

(4 minutes)

B. **Explain** by giving *two* reasons directly related to the company why the segmented portfolio approach makes more sense.

(4 minutes)

C. **Explain** how the surplus would likely be affected if Silts is wrong and rates fall.

(3 minutes)

QUESTION 7 HAS THREE PARTS FOR A TOTAL OF 14 MINUTES

Andy Beer is chief strategist for an investment advisor. The firm's asset base is more or less equally split between defined benefit pension plans and participant-directed 401(k) defined contribution plans. He recently hired John Cook as a strategy analyst. Cook is a candidate sitting for the Level III exam. Beer directs Cook to analyze real rate bonds whose principal is indexed to inflation.

A. **Determine** whether real rate bonds should be regarded as a distinct asset class or considered as part of traditional fixed income. **Support** the conclusion with three reasons. **Explain** which type of portfolios managed by the firm would have the clearest use for the bonds. You must choose either the defined benefit or defined contribution plans as having the clearest use.

(5 minutes)

Beer next directs Cook to consider two other new asset classes (NAC) for inclusion in their typical DB portfolios. Cook gathers the following data:

	Typical DB Portfolio	*NAC 1*	*NAC 2*
Expected return	8.5%	6.7%	11.1%
Standard deviation	9.3%	7.5%	11.8%
Sharpe ratio	0.806	0.760	0.856

B. Cook returns to Beer and states the NAC 2 is desirable to add, and NAC 1 is not. **Evaluate** and **explain** whether each recommendation is correct.

(6 minutes)

C. Beer then asks Cook to **state** and **explain** whether it is more appropriate to hedge currency exposure for international bond or equity assets.

(3 minutes)

QUESTION 8 HAS THREE PARTS FOR A TOTAL OF 14 MINUTES

Andy Beer is preparing to meet with a large prospective client. The client is considering alternate methods of setting strategic asset allocation. In preparation, Beer is reviewing alternative approaches.

A. **State** and **explain** the primary problem with mean-variance optimization that can be overcome with resampling and the consequences of this problem.

(5 minutes)

B. **Discuss** how the Black-Litterman and ALM approaches to asset allocation differ or are similar.

(5 minutes)

C. **Discuss** whether it makes more sense to regard risk-free assets as an asset class in efficient frontier analysis or as the starting point of the Capital Allocation Line when determining strategic asset allocation for portfolios with ongoing and multiple-period time horizons.

(4 minutes)

QUESTION 9 HAS FOUR PARTS FOR A TOTAL OF 21 MINUTES

Keith Worthington and Jan Carlos are discussing various approaches to equity portfolio management and the tradeoff between active return versus tracking risk. Worthington states the tradeoff is that as active return increases, there will be an increase in tracking risk, resulting in no systematic change in the information ratio. Carlos states that tracking risk will be higher for enhanced indexing than for full-blown active management if the active manager is allowed to selectively hedge risk.

A. **State** whether each comment is correct or incorrect. If it is incorrect, **explain** what is incorrect.

(4 minutes)

Worthington then brings up a recent analysis he has performed on a manager. He ran the following regression analysis on the manager's return (R_P). The factors in the analysis are small- and large-cap growth and small- and large-cap value, respectively.

$$R_P = 1.2\% - 0.61(SCG) - 0.85(LCG) + 1.23(SCV) + 1.45(LCV)$$

- Worthington goes on to state that because the largest weight is large-cap value, the best classification is that the manager is a large-cap value style manager.
- Carlos states that the analysis is consistent with a long-short portfolio, and a reasonable performance benchmark is money market return plus a spread.

B. **Discuss** each comment and **state** what is correct and incorrect in each statement. There must be parts you agree and disagree with in each comment.

Answer Question 9-B in the template provided.

(6 minutes)

Template for Question 9-B

Statement by:	Discuss what is correct	Discuss what is incorrect
Worthington		
Carlos		

C. Carlos is considering combinations of the three investment alternatives shown in Exhibit 2. **Compute** the expected active return, active risk, and information ratio of allocating 80% to alternative 1 and 20% to alternative 2. **Show** your work.

(6 minutes)

Exhibit 2

Alternative	*Active Return*	*Active risk*
1	–0.10%	0.01%
2	2.71%	4.55%
3	1.55%	2.77%

D. **State** whether this allocation is most likely a completeness fund approach or a core-satellite approach. **Support** your decision with two reasons.

(5 minutes)

QUESTION 10 HAS SIX PARTS FOR A TOTAL OF 24 MINUTES

Alyssa Chong and Ivan Kozlov are reviewing client return reporting requirements for their firm. One of the issues they have been asked to research is the effect of client contributions and withdrawals to a portfolio return. As an example, in the month of June, account 179E received a contribution of GBP15.0 million on June 10. The account had an ending value of 107.9 million, a beginning value of 86.3 million, and a value after the contribution of 116.2 million.

A. **Compute** the most accurate measure of return for the month to reflect the performance of the manager. **Show** your work.

(3 minutes)

B. Kozlov reviews the calculations for account 179E and states that while that is the most accurate calculation, in this case, there are several methods that could be used because they would produce reasonable approximations. **Discuss** whether Kozlov is correct in general and whether he is correct in this specific situation. **Support** your conclusions with reference to specifics of the account. No additional calculations are required.

(2 minutes)

Chong next reviews the issue of selecting valid benchmarks for portfolio performance analysis. She has identified the Wilshire 5000 as the suitable market proxy (M) for account 179E but needs to determine a style benchmark (B) for the manager of the account. She has defined the portfolio return as being composed of: M (market return), S (style = M – B), and A (manager value added). To determine a suitable benchmark, she has analyzed three possible benchmarks and regressed their returns with the manager's value added. The results are shown in Exhibit 3.

Exhibit 3

Benchmark	*Value added (P – B)*	*Correlation of A to S*
1	1.23%	0.75
2	0.97%	–0.04
3	1.83%	–0.89

C. **Determine** the most appropriate style benchmark for portfolio 179E and **support** your conclusion.

(3 minutes)

Kozlov wishes to perform attribution analysis on account 263. Account 263 is a balanced account and is composed of two sub accounts: 263E is managed by the firm's equity team and 263B by the fixed income team. He first reviews macro attribution analysis for the last quarter shown in Exhibit 4.

Exhibit 4 (in millions)

Asset category	*Beginning value*	*Ending value*	*Net cash flow*	*Return*	*Benchmark return*
Domestic equity	23.45	14.67	–10.82	8.97%	9.53%
Fixed income	4.92	16.49	+9.75	17.63%	15.33%
Total	28.37	31.16	–1.07	14.79%	n.a.

D. **Determine** which investment team or teams (equity or fixed income) added value to the portfolio during the period. **Support** your conclusions with calculations.

(4 minutes)

Chong next reviews the micro attribution data of another account, 56E. That data is shown in Exhibit 5.

Exhibit 5

	Weight		*Return %*	
Sector	*Portfolio*	*Benchmark*	*Portfolio*	*Benchmark*
Industrials	0.176	0.197	4.50	6.70
Consumer	0.453	0.483	6.71	7.52
Finance	0.222	0.134	5.99	6.57
Energy	0.149	0.186	3.22	–4.59
Total portfolio	1.00	1.00	n.a.	4.98

E.

i. **Compute** the total value added by the manager.
ii. **Compute** pure sector allocation effect.
iii. **State** which within-sector decisions added value and which reduced value (no computations are required for part iii).

(9 minutes)

F. Kozlov reviews the data and computations for account 56E and points out the actual return for the account was 0.15% higher than just computed. Assuming all of the numbers computed are correct, **explain** what the additional 15 b.p. represents.

(3 minutes)