Questions on this exam's topics from Fall 2020 quizzes
Note that I used more of a short-answer format during this term.

1. In one or two short sentences: Describe a difference between the market for bonds and stocks, that makes the bond market a more difficult investment environment than the stock market for the average person. (There is more than one possible answer.)

Some possible answers: The bond market is less liquid; there are many bonds for each issuer; it is more difficult to create a bond index; it is more expensive to trade bonds.

2. A recent study focused on days when many stocks pay dividends. The study found that the stock market performance on these days is about average. But, it also found that many commentators mistakenly report that the stock market performed poorly on these days. What mistake are the commentators making?

They forget that dividends cause stock prices to fall without hurting investors' returns.

3. Suppose the following things happen, in order:

- You buy a stock for $10.
- Then the stock price goes up to $15.
- Then the stock pays a dividend of $1.
- Then you sell the stock.

What is your capital gain on the sale? (I am asking about the capital gain only, not the dividend yield or the total return from investing in the stock.) You can answer with either the dollar amount of the capital gain, or the capital gain as a percentage of your initial investment.

You realize a capital gain of $4 because the price fell by $1 when the dividend was paid.
As a percentage, this is 40% of your initial investment, $4/$10 or ($14/$10) - 1.

4. Suppose a company reports total assets of $4 billion, total liabilities of $1 billion, and 1 billion shares outstanding. It then pays a dividend of $1 per share. What will be the book value of the company's equity, after the dividend is paid?

Book equity starts at $4bn - $1bn = $3bn.
Then it falls by the amount of the dividend payment, which is $1×1bn shares = $1bn.
So ending book equity is $2bn.
It was also acceptable to report ending *per-share* book equity which was $2.00.

5. The table below describes the prices of two stocks at the beginning and end of a specific year. Note that there is no change in the number of shares outstanding for either stock during the year.

Ticker symbol	Share price, start of year	Share price, end of year	Shares outstanding
A	$100	$112	3 million
B	$100	$104	1 million

What is the return on an **equal-weighted index** of the two stocks during the year?

Return on A: $112/$100 - 1 = 12%
Return on B: $104/$100 - 1 = 4%
Equal weighted return: 0.5×12% + 0.5×4% = 8%

6. (Referring to the same table above) What is the return on a **value-weighted index** of the two stocks?

We can weight the capital gains on the stocks by their market cap:
(3/4)×12% + (1/4)×4% = 10%

Or we can just compute change in total market cap:

($112×3m + $104×1m) / ($100×3m + $100×1m) - 1 = 10%

If the share counts changed during the year, the second approach would be more involved: We would need to compute a new divisor as in the examples from class.

7. (Referring to the same table above) What additional information would you need in order to calculate the return on investing in a **value-weighted portfolio** of the two stocks during the year?

You would need to know the dividends paid by each stock.

8. State a reason that it is cheaper to maintain a value-weighted strategy than an equal-weighted strategy. (There is more than one possible answer.)

Two possible answers are: (1) Less trading required which means less trading costs. (2) The value-weighted portfolio is the only one that *all* investors can hold, so a fund offering this portfolio can grow to a larger size and achieve better economies of scale than a fund with any other strategy.

9. Name a situation in which the return on value-weighted index is not equal to the change in total market capitalization of the companies in the index.

Any situation that requires the divisor of the index to change.

You could say this, or state one of those situations, such as share repurchase or issuance.

10. Name a situation in which (1) the return on a value-weighted index *is* equal to the change in total market capitalization of the companies in the index, but (2) this return is not equal to the return on investing in a value-weighted *portfolio* of the companies in the index.

When a company pays a dividend (and also the divisor of the VW index does not change, but you do not need to say this part to get credit for the question).

11. What is typically the biggest source of rebalancing requirements for an **equal-weighted** investment strategy? (Hint: The answer would be the same for any strategy other than value-weighting.)

The biggest source of rebalancing requirements by far is the need strategy to rebalance in response to price changes. This is true of any strategy other than value-weighting.

12. Which type of fund generally holds the largest amount of cash in its portfolio?

Open-end fund.

13. What type of fund sees the least change in shares outstanding in a typical week or month?

Closed-end.

14. Which type of fund mainly uses in-kind transactions rather than cash transactions?

ETF.

15. What type of fund normally has the closest connection between the fund's NAV, and the price at which investors can buy and sell shares?

Open-end fund.

16. Which type of fund represents the smallest share of assets in the United States today?

Closed-end fund.

17. Suppose an authorized participant wants to obtain $1 million worth of new shares from an ETF that tracks the performance of the S&P 500 index. What must the AP give to the fund in exchange for these shares? (Hint: for a mutual fund, the answer would be "one million dollars in cash," but for an ETF the answer is something different.)

The AP must give a value-weighted portfolio of the index stocks worth $1m in total.

18. Suppose a mutual fund has $100m of assets, no liabilities, and 10m shares outstanding. Suppose a large investor redeems 1 million shares. Finally, suppose the fund meets this redemption without selling any of its holdings for a capital gain. What will be the fund's NAV afterward?

$10, the same as where it started.

19. As in the previous question, suppose a mutual fund has $100m of assets, no liabilities, and 10m shares outstanding, for a NAV of $10, and suppose a large investor redeems 1 million shares. In this case, assume that the fund sells some of its holdings and realizes a large capital gain in the process of meeting the redemption request. This will cause the fund's NAV to be lower than what you answered in the previous question. Why?

The fund's NAV will be lower by the amount of the per-share capital gain, because the fund must distribute this amount to its investors.

20. Suppose you buy one share in an open-end fund that passively tracks a stock market index. At the date of your purchase, the fund has $100m of assets, no liabilities, and 10m shares outstanding, for a NAV of $10. During the next year, the market index gains 10%. At the end of the year, the NAV of your share is $10.90. What were the fund's total expenses during this time?

$1 million: If there were no expenses, the fund's assets at the end of the year would be worth 10% more than where they started, or $110 million. In reality, the assets were worth $10.90 times 10 million shares, or $109 million. The difference of $1 million is the amount of expenses that the fund deducted from its NAV.

21. Suppose you buy one share in an ETF that tracks a stock market index. At the date of your purchase, the market price of the ETF shares, and the NAV of the ETF, are both equal to $10. During the year, the fund distributes dividends of $1 per share. At the end of the next year, the NAV of the ETF is $10.90, while the market price of the shares is still $10.00. If you exit your investment at this point, what return have you earned?

Since the share price has not changed, your only return is the dividend yield of 10%. Using our usual formula, (P1 + D)/P0 – 1 = ($10 + $1)/$10 – 1 = 0.10 = 10%.

22. Which feature of the ETF structure is shared by open-end mutual funds, but not by closed-end mutual funds?

A) Shares of the fund are traded on an exchange.
B) The share price is always exactly equal to the fund's NAV.
C) The fund may experience investment inflows or outflows at any time.
D) Transactions with the fund are often conducted "in-kind").

23. Which feature of the ETF structure is not shared by closed-end *or* open-end funds?

A) Shares of the fund are traded on an exchange.
B) The share price is always exactly equal to the fund's NAV.
C) The fund may experience investment inflows or outflows at any time.
D) Transactions with the fund are often conducted "in-kind."