Question 1: [3 points] You could describe the sources of profits among different types of traders in the following way:

- Market makers make money from noise traders and noise traders make money from informed traders and informed traders lose to others
- Market makers make money from both informed traders and noise traders
- Noise traders make money from market makers and market makers make money from informed traders and informed traders lose to others
- **Informed traders make money from market makers, market makers make money from noise traders, and noise traders lose to others**

Question 2: [3 points] An investor with a short position may use a (non-marketable) buy limit order to

- Limit his/her losses
- **Lock his/her gains**

Question 3: [3 points] Front running is:

- Trading in the same direction as a trend right before the trend starts
- Trading in the same direction as another trader right after their trade
- **Trading in the same direction as another trader right before their trade**
- Trading in the opposite direction as another trader right before they trade

Question 4: [3 points] Comparing the NYSE to Nasdaq:

- NYSE does not use an electronic system for trading but Nasdaq does
- **Both exchanges compete fiercely for market listings and volume**
- Most high-tech modern firms prefer to list on NYSE
- The NYSE has multiple dealers for each stock while Nasdaq has one

Question 5 [3 points]: True/**False**: The feature that distinguishes the standard limit order from the D-limit order offered by IEX is that if the IEX detects that the stock's price is about to move in a direction unfavorable to the trader it informs the trader and requires him/her to adjust the limit price of the order.

Question 6 [3 points]: True/**False**: SEC's locked-markets ban applies to all orders.

Question 7 [3 points]: Retail order flow is more desirable *to a market maker* because, relative to institutions/institutional orders,----.

- **Retail traders are less likely to be informed (in possession of non-public information).**
- Retail traders are more likely to use sophisticated trading strategies.
- Retail traders are more likely to direct their orders to specific trading venues.
- Retail orders are usually subject to payment for order flow arrangements.

Question 8 [3 Points]: U.S. government economic statistics are often announced when the market is open. Immediately prior to an announcement, the bid-ask spread usually ---- and trading volume---.

- Widens; rises
- **Widens; drops**
- Narrows; drops
- Narrows; rises

Question 9 [3 Points]: What is the most important difference between stop orders and away from the market limit orders?

- **Stop sell (or stop loss) orders are set at prices below the market, limit sell orders are set at prices above the market**
- The execution of stop orders does not depend on the price
- Stop orders are sent to the central limit order book while limit orders are just held by your broker
- Stop sell (or stop loss) orders are set at prices above the market, limit sell orders are set at prices below the market

Question 10 [3 points]: With Twitter trading around $55, an investor enters a stop-limit order: "sell 200 shares stop $52, limit $50." This is equivalent to ---.

- "Sell 200 shares limit $50."
- "Sell 200 shares limit $52."
- "Sell 200 shares at the market."
- **The answer is not listed.**

Question 11: [3 points] True/**False** It is illegal for universities to disclose price-relevant economic reports to a selected group of investors.

Question 12: [3 points]: True/**False**: More trading takes place in dark pools during market turmoils than during the times that the market is calm.

Question 13: [3 points] An investor with a short position may use a buy stop loss order to

- **Limit his/her losses**
- Lock his/her gains

Question 14 [3 points]: True/**False**: Robinhood is the only broker who sells order flow to high frequency trading firms.

Question 15 [3 points]: True/**False** When a dealer simultaneously receives buy and sell orders from customers, government regulations require them to pair off the customers against each other.

Question 16 [4 points]: For stock *A* markets AX and BX are the only two market centers. Their ask books look like this:

Price	AX		BX	
$10.10	100 sh	*Hidden*		
$10.09	200	Visible	100 sh	Visible
$10.08			300	Visible
$10.07	300	Visible	500	Visible

What is the National Best Offer?

- $10.1
- $10.09
- $10.08
- **$10.07**

Question 17: True/**False**: Price-tier-time priority rule in which a dark pool operator can favor its own client is illegal.

Question 18: [3 points] True/**False**: Dark pools are required by law to exclude any "toxic" order that is a submitted by a HFT firm.

Question 19 [3 Points]: True/**False**: If filled, a stop-loss order to sell at $50 would always be filled at $50 or better.

Question 20 [3 Points]: True/**False**: Currently, there are over 50 DMM firms at the New York Stock Exchange.

Question 21 [4 points]: The ask sides of the books at three market centers are as follows. There are no hidden orders.

Price	Exchange A shares	Exchange B shares	Exchange C shares
50.49	300	200	
50.48	100	800	
50.47	100	300	400
50.46		900	600
50.45	2,000	2,000	2,000

For each exchange, what are the protected asks (prices and quantities)?

- Exchange A: $50.49x300 Exchange B: $50.49x300 Exchange C: $50.47x400
- **Exchange A: $50.45x2,000 Exchange B: $50.45x2000 Exchange C: $50.45x2,000**
- Exchange A: $50.49x300 Exchange B: $50.49x200 Exchange C: $50.45x2000
- Exchange A: $50.49x300 Exchange B: $50.49x200 Exchange C: None

Question 22 [4 points]:: The ask sides of the books at three market centers are as follows. H in front of an order means that order is hidden.

Price	Exchange A shares	Exchange B shares	Exchange C shares
50.49	30	200	
50.48	100	800	
50.47	100	300	400 (H)
50.46		900	600
50.45	2,000	2,000	2,000

For each exchange, what are the protected asks (prices and quantities)?

- Exchange A: $50.49x300 Exchange B: $50.49x300 Exchange C: $50.47x400
- **Exchange A: $50.45x2,000 Exchange B: $50.45x2000 Exchange C: $50.45x2,000**
- Exchange A: $50.49x300 Exchange B: $50.49x200 Exchange C: $50.45x2000
- Exchange A: $50.49x300 Exchange B: $50.49x200 Exchange C: None

Question 23 [4 Points]: Suppose that you observe the following sequence of orders:

Time	Trader	Order	Size	Price
9:01	Bob	Buy	9	15
9:03	Sal	Sell	3	16
9:07	Sue	Sell	5	15
9:11	Bif	Buy	6	14
9:14	Stu	Sell	2	Mkt

If we submitted all these orders to a call market, what price would clear the market?

- $14
- **$15**
- $16

Question 24 [4 Points]: Suppose that you observe the following sequence of orders:

Time	Trader	Order	Size	Price
9:01	Bob	Buy	9	15
9:03	Sal	Sell	3	16
9:07	Sue	Sell	5	15
9:11	Bif	Buy	6	14
9:14	Stu	Sell	2	Mkt

If we submitted all these orders to a call market. How many shares would trade?

- 2
- **7**
- 9
- 11

Question 25 [4 points]: True/**False** Suppose that on average, investors in the stock market this year are expected to earn a positive return on their investment and that some investors will earn considerably more than others. One can then conclude that markets are not efficient.

Question 26 [4 points]: Consider following buy orders. Arrival sequence represents the time that the exchange has received the order (1: represents the earliest.)

Trader	Arrival Sequence	Quantity	Price	Display?
Amy	1	100	10.10	Y
Brian	2	400	10.02	Y
Chad	3	200	10.01	N
Dana	4	100	10.02	Y
Emily	5	300	10.01	Y
Frank	6	300	10.10	N
Gina	7	200	10.00	N

Under price-visibility-time priority, whose order would rank the second highest?

- Amy
- Brian
- Chad
- Dana Emily
- **Frank**
- Gina

Question 27 [4 points]: Consider following sell orders. Arrival sequence represents the time that the exchange has received the order (1: represents the earliest.)

Trader	Arrival Sequence	Quantity	Price	Display?
Amy	1	100	10.10	Y
Brian	2	400	10.02	Y
Chad	3	200	10.01	N
Dana	4	100	10.02	Y
Emily	5	300	10.01	Y
Frank	6	300	10.10	N
Gina	7	200	10.00	N

Under price-visibility-time priority, whose order would rank the highest?

- Amy
- Brian
- Chad
- Dana Emily
- Frank
- **Gina**

Question 28 [4 points]: For stock *A* markets AX and BX are the only two market centers. Their bid books look like this:

Price	AX		BX	
$10.10	100 sh	*Hidden*		
$10.09	200	Visible	100 sh	Visible
$10.08			300	Visible
$10.07	300	Visible	500	Visible

What is the National Best Bid?

- $10.1
- **$10.09**
- $10.08
- $10.07

Question 29 [4 points]: For stock *A* markets AX and BX are the only two market centers. Their bid books look like this

Price	AX		BX	
$10.10	100 sh	*Hidden*		
$10.09	200	Visible	100 sh	Visible
$10.08			300	Visible
$10.07	300	Visible	500	Visible

Market BX receives an order to sell 400 shares limit 10.08. It executes 100 shares at $10.09; send 100 shares to AX and executes 200 shares at $10.08.

True/False: This constitute a trade through from the perspective of Reg NMS?

Question 30 [4 points]: The bid sides of the books at three market centers are as follows. There are no hidden orders.

Price	Exchange A shares	Exchange B shares	Exchange C shares
50.49	30	200	
50.48	100	800	
50.47	100	300	400
50.46		900	600
50.45	2,000	2,000	2,000

For each exchange, what are the protected bids (prices and quantities)?

- Exchange A: $50.49x30 Exchange B: $50.49x300 Exchange C: $50.47x400
- Exchange A: $50.45x2,000 Exchange B: $50.45x2000 Exchange C: $50.45x2,000
- **Exchange A: $50.48x100 Exchange B: $50.49x200 Exchange C: $50.47x400**
- Exchange A: $50.49x30 Exchange B: $50.49x300 Exchange C: None