Assignment 5: Solutions

The correct answer is in bold font

Question 1: Which of the following statement is incorrect in the context of security prices in the financial markets?

(a) The observed price is inefficient: Hint: Observed price includes noise and hence is inefficient.
(b) Efficient (true) price is unobserved: Hint: Market prices are observed, they include noise and are hence inefficient.
(c) **Efficient (true) price is more volatile: Hint: Observed prices include noise and hence are more volatile (and inefficient also).**
(d) Fundamental information increases the efficiency of prices. Hint: The more fundamental information incorporated into the prices, the more efficient they are.

Question 2: Which of the following statement is incorrect in the context of market participants?

(a) **Noise traders' trading activity instills information in prices. Hint: Noise traders are uninformed or carry stale information. Their trading activity incorporates noise in prices.**
(b) Informed traders' trading activity instills information in prices. Hint: Informed traders are generally large institutional investors. They spend considerable resources on information acquisition. Their trading activity incorporates true and fundamental information in prices.
(c) Market makers offer both buy and sell-side quotes. Hint: Market makers have the responsibility of ensuring the continuous and smooth functioning of the market. So, they offer both-sided quotes continuously.
(d) Liquidity traders' trading activity installs noise in prices. Hint: Liquidity traders are driven by the need of trading (buying or selling), they do not have information. Thus, their trading activity instills noise in prices.

Question 3: Which of the following statement is incorrect in the context of efficient markets?

(a) One cannot make money using public information in a semi-strong efficient market. Hint: If a market is a semi-strong form efficient, then public information is already incorporated.
(b) **One can only make money using private information if the market is strong form efficient. Hint: If a market is a strong form efficient, then one cannot make money using any information.**
(c) If a market is a semi-strong form efficient (and trading on private information is unethical and illegal) then the best course of action is to stay invested in the market. Hint: If one cannot beat the market then one should keep investing in the market.
(d) If a market is weak-form efficient, then one can make money using public information. Hint: A weak form efficient market incorporates all the information available in past prices. However, all the public information may not be incorporated.

Question 4: Which of the following statement is incorrect in the context of Risk preferences?

(a) A risk-neutral person is equally happy with getting USD 100 with certainty or making a gamble that has USD 100 as an expected outcome. Hint: A risk-neutral person is not concerned with the increase or decrease in the risk of the proposition but with the expected outcome.
(b) **A risk-neutral person prefers to gamble more if the risk is increased. Hint: A risk-neutral person is indifferent to the risk of a gamble, and is only concerned with the expected outcome.**
(c) The utility function of a risk-neutral person is linear. Hint: For the risk-neutral person, the incremental utility for each unit of expected outcome is the same irrespective of the change in risk profile.
(d) A risk-preferring person would take less reward if the risk of the gamble is increased. Hint: Since the risk preferring person derives additional utility from the gamble with higher risk, she would be willing to take the gamble even with a lower reward, if it entails higher risk.

Question 5: In pure limit order book markets, liquidity is provided by

(a) Designated Market Makers. Hint: There are no designated market makers in pure limit order book markets.
(b) Market orders. Hint: Market orders consume liquidity.
(c) **Limit orders. Hint: Limit orders patiently waiting in the order book and provide liquidity to incoming market orders.**
(d) Brokers. Hint: Brokers do not directly trade in financial markets; they route their client's orders.

Question 6: Compute the relative spread for the best Ask: Rs 230 and the best Bid Rs 225.

(a) 0%-2%; Hint: $Relative\ Spread = \frac{AbsoluteSpread}{Mid\_Price}$
(b) **2%-4%; Hint:** $\boldsymbol{Relative\ Spread = \frac{AbsoluteSpread}{Mid\_Price} = \frac{5}{\frac{230+225}{2}} = 2.20\%}$
(c) 4%-6%; Hint: $Relative\ Spread = \frac{AbsoluteSpread}{Mid\_Price}$
(d) 6%-8%; Hint: $Relative\ Spread = \frac{AbsoluteSpread}{Mid\_Price}$

Question 7: For a rational individual the following is an incorrect statement.

(a) USD 1 today is preferred to USD 1 tomorrow. Hint: Due to the time value of money, rational individuals always prefer a dollar today to a dollar tomorrow.
(b) **A rational individual is a risk-neutral person. Hint: A rational individual is not risk-neutral as she demands additional premia to bear the extra risk.**

(c) A rational individual is a risk-averse person. Hint: A rational individual does not like risk, and would want an extra premium to bear that risk.
(d) A rational individual would prefer less risk for a given level of return and a higher return for a given level of risk. Hint: Risk-averse individuals require a certain extra premium to bear additional risk.

Question 8: An individual is (A) a lender or (B) a borrower if

(a) (A) If he is a consumer (B) If he is a saver. Hint: A consumer spends more in consumption and less in investment/lending and also may need to borrow to maintain that consumption; a saver is more of an investor/lender
(b) (A) If he is a consumer (B) If he is an investor. Hint: A consumer spends more in consumption and less in investment/lending and also may need to borrow to maintain that consumption; an investor can also be a lender
(c) (A) If he is a saver (B) if he is an investor. Hint: A saver or investor can invest/lend
(d) **(A) If he is an Investor (B) if he is a consumer. Hint: An investor can lend; a consumer may need to borrow to maintain the consumption levels**

Question 9: For a rational individual consuming normal goods with positive utility, the following statement is correct with respect to the marginal utility of consumption.

(a) The marginal utility is constant: Hint: If one consumes more and more of a certain good, the marginal utility of the consumption is not the same.
(b) The marginal utility of wealth becomes negative. Hint: While the marginal utility of normal goods such as food or clothing can become negative after excessive consumption, the marginal utility of wealth never becomes negative.
(c) Marginal utility increases with more consumption. Hint: As one consumes something in excess, the utility and satisfaction of the consumers do not increase.
(d) **Marginal utility decreases after a certain level of consumption. Hint: As one consumes something in excess, the utility and satisfaction of that consumption start to decrease after a certain limit.**

Question 10: The existence of financial instruments with different interest rates suggests

(a) The difference in taste and preferences. Hint: Unlike goods like food and clothing, tastes and preferences are not a factor in financial instruments (assuming that investors are rational).
(b) **Indicates the uncertainty in the economic and financial environment: Hint: Economic and financial uncertainty affects the risk of different financial instruments differently. Riskier instruments are expected to offer a higher rate of interest.**

(c) Presence of different opportunity sets Hint: While, there are different opportunity sets available to individuals, financial markets facilitate the optimization of the time pattern of consumption and also across different opportunity sets. Thus, in the presence of efficient markets, different opportunity sets may not result in different interest rates
(d) Indicates the certainty in the economic and financial environment: Hint: Economic and financial environment is not certain.