

Question 1: Why did it become a good investment to bet against mortgage-backed securities.

- A) The default rate on the mortgages kept rising.
- C) Banks were incentivized to issue more and more mortgages.
- D) A and C

Correct answer: D

Question 2: In terms of the fundamental law, when aiming for high performance, you can make up for low skill with ____.

- C) high breadth

Correct answer: C

Question 3: Is Bollinger Bands a leading indicator?

- B) No, Bollinger Bands is a lagging indicator

Correct answer: B

Question 4: What should you do when the stock hits the bottom Bollinger Band?

- D) Long the stock to have positive shares

Correct answer: D

Question 5: Who was the first bank Michael approached to make him the CDSs?

- B) Goldman Sachs

Correct answer: B

Question 6: If the Information Coefficient is doubled and the trading opportunities are multiplied by 9, what happens to the Information Ratio.

- C) The Information Ratio is multiplied by 6

Correct answer: C

Question 7: What is the best way an investor who is lacking in skill can beat a more skillful investor?

- C) Make more trades per day

Correct answer: C

Question 8: Which statement is true regarding the Fundamental Law of Portfolio Management?

- A) $IR = IC * \sqrt{BR}$

Correct answer: A

Question 9: Which of the following can not improve your performance based on the Fundamental Law?

- D) Decrease breadth but improve the skill

Correct answer: D

Question 10: What does CDS stand for?

- B) Credit Default Swap

Correct answer: B

Question 11: In the movie "The Big Short", what did Credit Default Swaps do?

- A) Insured the bonds against failure and the insurer paid the claim if the underlying bonds fail

Correct answer: A

Question 13: Which of these scenarios does not indicate an upward trend in stock price:

- C) A particular stock's short-term EMA falls below its long-term EMA

Correct answer: C

Question 15: Which celebrity chef and "Kitchen Confidential" author explains collateralized debt obligations (CDOs) by comparing them to fish stew?

- D) Anthony Bourdain

Correct answer: D

Question 17: In Reinforcement Learning, the default MDP has an assumption of infinite horizons to overcome that, we introduce a concept of _____ rewards. Multiplying the reward by λ raised to t . Where λ 's limits are $___ < \lambda \leq ___$.

- D) [discounted, 0, 1]

Correct answer: D

Question 19: Given that EMH is about 3 forms, weak, semi-strong, and strong. What would be the behavior of prices, if, for example, the standard investor became one that only bought and held stocks passively?

- B) Prices will fail eventually to show any type of new information. There will be incentives to trade more

Correct answer: B

Question 12: Which of the following is not the keys of Grinold's fundamental law?

- C) Luck

Correct answer: C

Question 14: Which of these could represent a State in a Reinforcement Learning problem when referring to a trading scenario?

- B) Daily Return

Correct answer: B

Question 16: Following statement is true or false: Hedge Funds cannot succeed if EMH applies.

- B) False

Correct answer: B

Question 18: Do you think that a market that is semi-strong efficient is also weak form efficient? Why or Why not?

- A) Yes it does, because semi-strong EMH states that the prices adjust immediately to all publicly available information, which also includes the asset's price history and vol data.
B) No it does not, because semi-strong EMH talks only about fundamental data such as the company's earnings.
C) Yes it does, because semi-strong EMH states that the prices adjust immediately to all publicly and privately available information.
D) No it does not, as semi-strong EMH talks about information that is mutually exclusive to weak form EMH.

Question 20: The goals of unsupervised learning and reinforcement learning are:

- A) The goal of unsupervised learning is to find similarities and differences between data points; the goal of reinforcement learning is to find a suitable action model to maximize cumulative reward;
B) The goal of unsupervised learning is to find a suitable action model to maximize cumulative reward; the goal of reinforcement learning is to find similarities and differences between data points;
C) The goal of both unsupervised learning and reinforcement learning is to find similarities and differences between data

Question 21: What is the meaning of "synthetic CDO" in "the big short" movie?

C) A CDO that contains credit default swaps

Correct answer: C

Question 23: Suppose you purchase a call option for a single stock (assume that you can do so) for \$10 on a day where the stock price is \$7 under the strike price. Starting from then, the price rises monotonically through the expiration date, on which the price of the stock is \$3 above the strike price. What is the maximum net profit that you can make during this time period, assuming your only choices are to either exercise or not exercise the option?

- A) -\$10
- B) -\$7
- C) -\$3
- D) \$3

Question 25: In an actively managed portfolio, what strategy may help you improve breadth?

B) Finding additional stocks and markets

Correct answer: B

Question 27: According to the movie "The Big Short", which of the following is closest in meaning to a "Credit Default Swap (CDS)"?

A) Going short on the default of mortgage-backed securities

Correct answer: A

Question 29: Which of the following is NOT an example of a state (s) in reinforcement learning?

C) Daily Returns

Correct answer: C

Question 22: According to the Fundamental Law, which of the following statements is most accurate?

- A) Increasing skill and/or breadth will increase performance, but it's more difficult to increase breadth than skill, and increasing skill isn't as effective as increasing breadth.
- B) Increasing skill and/or breadth will increase performance, but it's more difficult to increase skill than breadth, and increasing breadth isn't as effective as increasing skill.
- C) Utilizing machine learning will increase performance.
- D) A Georgia Tech education including CS7646 coursework will increase performance.

Question 24: Which of the following statements about Dyna is true?

C) Dyna is a blend of model-free and model-based methods

Correct answer: C

Question 26: Which of the following attribute of Q learning is important in convergence over infinite horizon?

D) gamma

Correct answer: D

Question 28: Which option below correctly describes the advantage of options?

A) You cannot lose more than the premium.

Correct answer: A

Question 30: What has the lowest risk ?

C) Stocks and Bonds

Correct answer: C

Question 31: In the movie, The Big Short, characters in the film, such as Michael Burry, would acquire _____ in order to short the MBS(Mortgage Backed Securities) which means betting against the housing market.

[REDACTED]

C) Credit Default Swaps

[REDACTED]

Correct answer: C

Question 33: In the movie, The Big Short, characters in the film, such as Michael Burry, would acquire _____ in order to short the MBS(Mortgage Backed Securities) which means betting against the housing market.

[REDACTED]

C) Credit Default Swaps

[REDACTED]

Correct answer: C

Question 35: What is TRUE about the efficient frontier

- A) The efficient frontier was introduced by William F. Sharpe, who also developed the Sharpe ratio method for calculating risk-adjusted return
- B) You can find portfolios not on the efficient frontier that have a higher return for the same amount of risk
- C) You can find portfolios not on the efficient frontier that have higher risk for the same amount of return
- D) Assuming none of the asset is risk-free, as the expected return decreases, the risk value of the efficient frontier will keep decreasing

Question 37: Given 2 companies have same Information Ratio Company A has algorithm 100 time smarter than Company B. Company A trades for 20 days a year. How many trades does company B need to execute?

A) 200000

[REDACTED]

Correct answer: A

Question 39: What is the reason that the main characters in "The Big Short" decide in credit default swaps?

- A) They all read a paper that predicted the possible stock market crash.
- B) They all noticed that the housing loan market was inflated with high risk loans being structured into loan packages with a AAA rating (low risk rating)
- C) They all noticed that the housing loan market was inflated with medium risk loans being structured into high risk loan packages like BB to CCC.
- D) They all got tipped off by the SMA for housing loan market predicting a change in the trend.

Question 32: What has the lowest risk for return?

[REDACTED]

C) Stocks and Bonds

[REDACTED]

Correct answer: C

Question 34: Key method to measure the performance of a portfolio manager is:

A) Information Ratio

[REDACTED]

Correct answer: A

Question 36: Which of the following statements related to Efficient Market Hypothesis is NOT TRUE?

- A) EMH assumes that agents are rational and people do NOT overreact or underreact when faced with new information.
- B) Semi-strong-form efficiency implies that neither fundamental analysis nor technical analysis techniques will be able to reliably produce excess returns
- C) Weak form of the EMH leaves room for Fundamental Analysis.
- D) In P/E ratio vs Return% dataset graph, The correlation between Price-Earnings ratio, 20-year annualized returns could be used to refute the efficient market hypothesis.

Question 38: Jared Vennett sells the 'Credit Default Swaps' . What does Mark Baum use it for?

A) Short the market.

[REDACTED]

Correct answer: A

Question 40: According to Bloomberg News, what opportunity similar to CDO which several large banks have started selling since 2015?

[REDACTED]

B) Bespoke Tranche Opportunity

[REDACTED]

Correct answer: B

Question 41: Fill in the blank. Transition function is a three dimensional object given by $T[s,a,s']$. Suppose we are in state "s" and take particular action "a" then the sum of all the next states "s'(s prime)" we might end up in should sum to be ____.

B) always 1

Correct answer: B

Question 43: Which stock properties would best be considered to comprise an optimal portfolio with higher combined returns and lower risk than either of the individual stocks.

B) Stocks ABC and DEF with covariance value of -0.9.

Correct answer: B

Question 45: The discount factor allows us to value:

C) short-term reward more than long-term ones

Correct answer: C

Question 47: In order to reduce risk while maximizing returns, portfolios often allocate stocks based upon _____ correlation in the short term and _____ correlation in the long term.

A) negative, positive

Correct answer: A

Question 49: For Grinold's Fundamental Law, what is Information Ratio (performance) similar to?

B) Sharpe Ratio

Correct answer: B

Question 42: If a stock is said to have good relative strength, it means:

A) The ratio of the price of the stock to a given market index has trended upwards

Correct answer: A

Question 44: When 2 FrontPoint traders, Danny and Porter travel to Miami to investigate current housing development, they learn...

B) most homeowners have defaulted on their mortgages and have moved out.

Correct answer: B

Question 46: Which of the following hypotheses hold under Efficient Market Hypothesis?

B) EMH implies that prices must incorporate all existing information

Correct answer: B

Question 48: In order to reduce risk while maximizing returns, portfolios often allocate stocks based upon _____ correlation in the short term and _____ correlation in the long term.

A) negative, positive

Correct answer: A

Question 50: Which of the following is an issue when we buy or sell stocks with most significant price changes?

A) Certainty of price change

Correct answer: A

Question 51: It is currently debatable whether the stock market is efficient or not (if the efficient market hypothesis is correct). How do you expect this to change in the future?

- A) New investors enter the market every day, I expect market efficiency to decline in the future, as there will be more noise in the market.
- B) Sophisticated investors and institutions still rely heavily on human decision making. I expect market efficiency to increase in the future. As more institutions adopt computer-automated and systematic trading systems, a fair-market price equilibrium should be reached in shorter time.
- C) The stock market is perfectly efficient, and it will remain that way.
- D) The stock market is entirely inefficient, and will remain that way.

Question 53: What is Information Ratio?

- D) Sharpe Ratio of the excess return

Correct answer: D

Question 55: You are using Dyna-Q to learn a policy to help with trading a new mutual fund. You only have a few days to trade before you need to cash out for other reasons. To model this time constraint do you:

- A) Use a high alpha (learning rate) so that you learn your policy quickly.
- B) Use a low lambda (discount rate) because you value later rewards less.
- C) Use fewer hallucination cycles so that you have more time to trade.
- D) Use a smaller set of training data to mimic the small time frame you will have to trade.

Question 57: What is the correct sequence for the cycle describing the RL problem?

- B) Sense, Think, Act

Correct answer: B

Question 59: Which of the following methods is NOT a valid way of solving a reinforcement learning problem?

- A) Transition Iteration

Correct answer: A

Question 52: Which statements is FALSE about "The Big Short"?

- C) AAA tranches have higher risks than BBB tranches.

Correct answer: C

Question 54: Which statements is FALSE about "The Big Short"?

- C) AAA tranches have higher risks than BBB tranches.

Correct answer: C

Question 56: Assume beta represents the market return and alpha represents the residual return. Which answer below exactly contains the factors that Information Ratio is related to?

- D) $\text{mean}(\alpha), \text{std}(\alpha)$

Correct answer: D

Question 58: According to the movie, what happened in the second quarter of '07 that caused mortgage defaults to skyrocket?

- A) The adjustable rates on the mortgages kicked in

Correct answer: A

Question 60: Which of the following are characteristics of technical analysis? i. price of stock ii. value of a company iii. volume of stock traded

- C) i and iii

Correct answer: C

Question 61: Which of the following are not assumptions of the Efficient Markets Hypothesis?

B) Small number of investors

Correct answer: B

Question 63: Why is a good idea to create a portfolio that combines assets with negative correlations?

C) To reduce portfolio volatility

Correct answer: C

Question 65: Which of the following choices is not an assumption made by the Efficient Market Hypothesis?

D) The market can be beaten by efficient trading practices

Correct answer: D

Question 67: To assess weights for portfolio that minimizes risk using Mean Variance Optimization technique, what are the inputs required ?

A) Expected Return, Volatility, Covariance, Target return

Correct answer: A

Question 69: Which of the following did Mark Baum (owner of Front Point Partners) do in the movie?

A) Open up to his wife about his brother

Correct answer: A

Question 62: Which of the following is true about Markov Chain problems ?

B) The sum of the all the next states in transition function is 1.

Correct answer: B

Question 64: Reinforcement learning algorithm tries to (select one that applies)

D) Find a policy π that maximizes Reward function.

Correct answer: D

Question 66: The goal for reinforcement learning is to find a Policy π that maps a state to an action that we should take and its goal is to find this π such that it maximizes some future sum of the reward. Which of the following is the way that we calculate discount reward? Suppose n is a finite number, $0 < \lambda < 1$, and r_i is the reward for the i th action.

C) $\sum_{i=1}^{\infty} \lambda^{i-1} r_i$

Correct answer: C

Question 68: According to EMH, what type of analysis/analyses could provide excess returns for the semi-strong form?

D) Neither A or B

Correct answer: D

Question 70: Stock options can increase the _____ of a portfolio, as the investor can keep more cash on hand up to the expiration date.

B) leverage

Correct answer: B

Question 71: In the movie The Big Short, what does finally convince Mark Baum to start buying credit default swaps on mortgages?

- C) After investigating neighborhoods and people getting multiple mortgages

Correct answer: C

Question 73: What is the root cause of 2008 financial crisis?

- A) hedge fund trading with derivatives

Correct answer: A

Question 75: Please select statements that are True:

- B) The end goal of the Markov decision problem is to find a policy that maximizes total rewards

Correct answer: B

Question 77: The current market price of XYZ is \$ per share. An investor plan to purchase 1 XYZ 50 calls with \$2 premium per share and 1 XYZ 50 puts with \$2 premium per share. What is the breakeven points of this purchase:

- C) 46 and 54

Correct answer: C

Question 79: What problem would be most effectively addressed by reinforcement learning?

- C) Using sensors to navigate an environment

Correct answer: C

Question 72: In the movie "The Big Short ", hedge fund manager Michael Burry discovers that the United States housing market is extremely unstable. Therefore, he decides to take a short position against the United States housing market. Which option is correct about shorting?

- A) You always win money when taking short position.
B) Short sellers borrow shares of stock that they do not own and sell those shares at the current market price.
C) Short sellers sell shares of stock that they own and sell those shares at the current market price.
D) Short sellers borrow shares of stock that they do not own and sell those shares at the lower current market price.

Question 74: Identify the FALSE statement about the components that make up a Markov Decision Problem.

- C) Observations - events observed that are by-products of the current state of the process

Correct answer: C

Question 76: Which of these metrics are not used in the Bollinger Band calculation introduced in lecture?

- B) Momentum

Correct answer: B

Question 78: Suppose you use a butterfly strategy: buy a 105 call at 7.16 and a 115 call at 0.53, write two 110 calls at 2.73. What is the break-even price of the strategy?

- A) 107.23

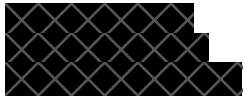
Correct answer: A

Question 80: Which version of the Efficient Market Hypothesis suggests that insider trading cannot be possible?

- A) Strong

Correct answer: A

Question 81: Which of the following is not part of the Markov decision problems:



D) Value function

Correct answer: D

Question 83: If market is perfectly efficient, which of the followings will still be able to generate returns?

- A) High frequency traders
- B) Active portfolio managers
- C) Passive portfolio managers

Correct answer: D

Question 85: Which one of the following statements is NOT correct?



D) Both American options and European options can be exercised any time before the expiration date.

Correct answer: D

Question 87: What is NOT correct regarding the Q-learning update rule?



C) Discount and immediate reward of both past and future actions should be considered when calculating new Q-value.

Correct answer: C

Question 89: The lowest possible Sharpe ratio of a portfolio that contains at least two stocks is:



C) lower than the lowest Sharpe ratio of any one stock in the portfolio

Correct answer: C

Question 82: Which of the following distinguishes a Model-Based Reinforcement Learning algorithm from a Model-Free algorithm?

A) A Model-Based algorithm observes the transition of an environment from state S to state S'



C) While a Model-Free algorithm does not attempt to create a model of the transition function of the environment ($T[S, A, S']$), it does attempt to model the transition function of the environment.

D) Both A and C

Question 84: Which of the following is not assumed as part of the Efficient Markets Hypothesis?



D) The current price reflects all available information and slowly adjusts based on demand

Correct answer: D

Question 86: Google has implemented reinforcement learning to train a human robot how to walk. The robot can be simplified as a multi-body object linked by joints (actuators). Google would want to train a robot that:

- Stay stand as long as possible, do not fall down
- Move as fast as possible, do not run off the center of the road
- be as efficient as possible, the actuator should apply appropriate force / torque to the joint

The google team wants to turn to you for help: how can they solve this problem and form a RL problem? Please select the correct item that would best match State, Action and Reward.

A) State: the forces applied to the joints. Action: the current position and velocity of the joint. The surface condition of the road. Reward: A function $R = Vx - 0.5(Vy + Vz) - 0.5y^2 - 0.5z^2$

Question 88: If you believe in the weak form version of the Efficient Market Hypothesis, which of the following would you NOT be likely to consider valuable information?

A) Stock volatility over the last month



Correct answer: A

Question 90: The Fundamental Law of Portfolio management states which of the following:

A) Portfolio performance increases as skill increases

B) Portfolio performance increases as trading opportunities increases



D) Both (A) and (B)

Correct answer: D

Question 91: The goal of reinforcement learning is to find the optimal policy. What are possible outputs of a policy function?

- A) A single action that should be taken next when in a particular state
- B) A probability distribution over a set of actions
- C) A and B

Correct answer: C

Question 93: If two portfolio managers have the same investment skills, which one you would prefer?

- B) The one who works in a very small company, but have many opportunities to invest

Correct answer: B

Question 95: Suppose your best friends is a CEO of a company, and you could always acquire the latest inside information of this company. But one day you find that you could NOT use this advantage to make profits. Which of the following statements about the efficient market hypothesis (EMH) is supported by your experience?

- C) The strong version of EMH is valid.

Correct answer: C

Question 97: Which of the following can be inferred by the weak form of the Efficient Market Hypothesis?

- A) Future prices of AAPL cannot be predicted by analyzing historical prices.

Correct answer: A

Question 99: Increase in SMA(Simple Moving Average) over a period of time indicates:

- C) Increase in the Stock price for the time period

Correct answer: C

Question 92: If two portfolio managers have the same investment skills, which one you would prefer?

- B) The one who works in a very small company, but have many opportunities to invest

Correct answer: B

Question 94: About Q-learning, which statement is wrong?

- C) It is designed to make future rewards worth more than immediate rewards.

Correct answer: C

Question 96: Technical Analysis is most effective for...

- C) Making simple trading decisions

Correct answer: C

Question 98: When thinking about trading stocks as a Reinforcement Learning problem. Which choice is defined as an action?

- A) Buy

Correct answer: A

Question 100: Which of the following are states in a trading reinforcement learning problem? (Looking for an S)

- B) Holding Long

Correct answer: B

Question 101: What is considered a major benefit of exchange-traded stock options?

B) The loss is capped to the premium

Correct answer: B

Question 103: How will information ratio change if adding additional cash to the portfolio?

C) The information ratio will decrease.

Correct answer: C

Question 105: Stock A and stock B each gives a 12% annual return. Daily returns standard deviation of stock A is 0.0027 and stock B is 0.0031. If you have \$100 which one of below 4 options would be the best investment strategy to invest the \$100?

D) \$100 in Stock A

Correct answer: D

Question 107: You have 30 candidate liquid driver symbols e.g. SPY, XLE, XLF etc. You believe there exists a linear relationship between those 30 liquid instruments' returns and an illiquid instrument's returns e.g. SNOW: $r_{SNOW} = \beta_{SPY} * r_{SPY} + \beta_{XLE} * r_{XLE} + \beta_{XLF} * r_{XLF} + \dots$. However, you believe the relationship is sparse i.e. most Betas are zero. Which of the following regression techniques would produce a sparse linear relationship? Hint: Think about how a penalty behaves when the Beta is small.

- A) Lasso Regression i.e. penalize the absolute value of each regressor's beta
- B) Ridge Regression i.e. penalize the square of each regressor's beta
- C) RANSAC i.e. fit a simple linear model from random subsets of

Question 109: Assume you bought 100 buy option calls at \$110 strike price of AAPL stock, which takes \$300 as the premium. The stock price moved from \$115 to \$120. What is the maximum return available?

C) 9700

Correct answer: C

Question 102: Say DIS stock is currently trading at \$50 per share. Now we purchase one call option contract (100 shares) on DIS with a \$70 strike and at a price of \$5.00 per contract. Please select the correct description below:

B) The cost of buying the option is \$500

Correct answer: B

Question 104: Which of the following is true for trading with Bollinger Bands?

A) Large breakouts often occur after periods of low volatility when the bands contract.

Correct answer: A

Question 106: You have 30 candidate liquid driver symbols e.g. SPY, XLE, XLF etc. You believe there exists a linear relationship between those 30 liquid instruments' returns and an illiquid instrument's returns e.g. SNOW: $r_{SNOW} = \beta_{SPY} * r_{SPY} + \beta_{XLE} * r_{XLE} + \beta_{XLF} * r_{XLF} + \dots$. However, you believe the relationship is sparse i.e. most Betas are zero. Which of the following regression techniques would produce a sparse linear relationship? Hint: Think about how a penalty behaves when the Beta is small.

- A) Lasso Regression i.e. penalize the absolute value of each regressor's beta
- B) Ridge Regression i.e. penalize the square of each regressor's beta
- C) RANSAC i.e. fit a simple linear model from random subsets of

Question 108: What does the housing crisis suggest about the Efficient Market Hypothesis?

- A) It corroborates the EMH because certain hedge funds were able to short the housing market using data collected from mortgage data.
- B) Market bubbles don't exist. The Economy is perfect. Everything is always fine.
- C) It contradicts the EMH because information relevant to the crash was not reflected in housing market share prices.
- D) It corroborates the EMH because the crash could have been easily predicted from the available stock price information.

Question 110: Which of the below statements is most correct about Dyna?

- A) Dyna utilizes a model-free based method.
- B) Dyna utilizes a model-based method.
- C) A and B.

Correct answer: C

Question 111: According to portfolio optimization and the efficient frontier, what is defined as "Risk"?

- ☐ A) Standard deviation of historical daily returns
- ☐ B) Standard deviation of historical daily returns

Correct answer: B

Question 113: Which of the following statement about efficient market assumptions is FALSE?

- ☐ A) Prices are driven by small groups of wall street hedge funds with efficient algorithms.
- ☐ B) Technical analysis cannot succeed

Correct answer: A

Question 115: What are the two components of taking action a in state s for $Q[s, a]$?

- ☐ A) immediate reward, discounted reward
- ☐ B) immediate reward, discounted reward

Correct answer: B

Question 117: A portfolio can lie above the efficient frontier.

- ☐ A) Incorrect, the efficient frontier represents the lowest risk portfolio for a given level of return.
- ☐ B) Incorrect, the efficient frontier represents the lowest risk portfolio for a given level of return.

Correct answer: D

Question 119: Which one of the following sentences is true for the efficient market hypothesis?

- ☐ A) Since all the hedge fund managers can identify similar opportunities they have to act on these ASAP.
- ☐ B) Since all the hedge fund managers can identify similar opportunities they have to act on these ASAP.

Correct answer: C

Question 112: Which of the following statement about efficient market assumptions is FALSE?

- ☐ A) Prices are driven by small groups of wall street hedge funds with efficient algorithms.
- ☐ B) Technical analysis cannot succeed

Correct answer: A

Question 114: If the weak form of the EMH is correct then

- ☐ A) Technical analysis cannot succeed
- ☐ B) Technical analysis cannot succeed

Correct answer: B

Question 116: What is the most important factor to make a less volatile portfolio for the combinations of several stocks?

- ☐ A) Covariance of stocks
- ☐ B) Covariance of stocks

Correct answer: B

Question 118: Select one that has options on besides stocks:

- ☐ A) Commodities
- ☐ B) Commodities

Correct answer: A

Question 120: The assumption that prices will adjust rapidly to new public information represents which form of the Efficient Markets Hypothesis?

- ☐ A) Semi-strong
- ☐ B) Semi-strong

Correct answer: B

Question 121: What is risk?

A) standard deviation of historical daily return

Correct answer: A

Question 123: Does policy guarantee to converge? If it converges, does the optimal policy generates optimal value function?

A) Yes, Yes

Correct answer: A

Question 125: Which of the following schema is model free?

C) Q Learning

Correct answer: C

Question 127: Which of the statement of Q-learning below is False?

D) The learning rate determines the importance of future rewards.

Correct answer: D

Question 129: In Q-Learning an experience tuple is denoted by . What do the variables s , a , s' and r stand for?

B) s = initial state, a = action, s' = new state, r = reward

Correct answer: B

Question 122: Your friend has been monitoring the market, waiting for a good time to buy some GOOGL. Which of the following is the best technical indicator to move forward with the purchase?

B) Prices have been increasing for a few days and just hit the lower Bollinger Band.

Correct answer: B

Question 124: Based solely on the foregoing prices, how would you best describe the relationship between Stock A and Stock B? Date (dd/mm/yyyy)

Stock A Price	Stock B Price	1.	02/05/2018
\$50.00	\$32.21	2.	05/05/2018
\$50.24	\$32.73	4.	12/05/2018
\$30.74	\$53.24	5.	23/05/2018

\$31.98 \$53.19 \$30.50

B) Negatively correlated

Correct answer: B

Question 126: Which of the following was NOT a contributing factor to the housing crisis in the movie The Big Short?

- A) FEMA unable pay insurance claims for damage to homes due to a very high cost of natural disasters in preceding years.
- B) Banks intentionally lending to lower quality borrowers to continue issuing many home loans.
- C) The belief that a position of a combined large number of high risk mortgage securities (strength in numbers) will result in an overall very low risk position in the long term.
- D) Too many people taking out mortgages to purchase homes that they couldn't afford.

Question 128: Which one of the statements below is correct considering moving average?

A) A moving average helps remove daily fluctuation from analysis.

Correct answer: A

Question 130: As illustrated in the plot of the movie "The Big Short," which of the following are contributors for the housing market collapse of 2008:

- A) increasing amounts of sub-prime home loans awarded to unqualified buyers
- B) the repackaging of sub-prime mortgages into CDOs which obscured their inherent risk
- C) incorrect (possibly fraudulent) ratings for mortgage-backed securities/CDOs from the major credit rating agencies
- D) all of the above

Correct answer: D

Question 131: When trying to increase performance according to the Fundamental Law, in general, which is easier to increase: skill or breadth?

- 
B) Breadth

Correct answer: B

Question 133: If a portfolio manager's skill remains constant(IC) and to improve the overall performance(IR) of portfolio by 5 times, using the fundamental law how much should the number of trades increase by?

- 
B) 25 times


Correct answer: B

Question 135: For a portfolio consisting of two stocks, what kind of correlation between the stocks minimizes the volatility or risk of the portfolio?

- 
D) Negative correlation (i.e. near -1 correlation)

Correct answer: D

Question 137: Which form of the Efficient Market Hypothesis states that stock prices are affected by ONLY the past price information.

- A) Weak


Correct answer: A

Question 139: According to the movie "the big short", which of the following is right?

- 
B) "The big short" shorted American house market with CDS (Credit Default Swap).




Correct answer: B

Question 132: Information Ratio IR is the Sharpe Ratio of:

- A) Excess Daily Return



Correct answer: A

Question 134: For the update rule of Q table, a higher value of alpha and a higher value of gamma indicate which of the following?

- 
C) The previous value of Q is preserved less; The learning process is more quickly; The later rewards are valued more




Correct answer: C

Question 136: Which is NOT the assumption of efficient markets hypothesis?

- A) Price does not reflect all available information


Correct answer: A

Question 138: What is the name of the way hedge fund manager Michael Burry shorts the US housing market?

- 
B) Credit Default Swap


Correct answer: B

Question 140: Andrey Markov was a Russian mathematician that created the concept of stochastic process modeling that we now call the Markov decision process (MDP). In the mathematics of MDPs, S normally represents the possible states, A represents the possible actions that can be taken, and R represents the rewards. What does π represent?

- 
B) The current estimate of the policy


Correct answer: B

Question 141: Consider three different funds that increase by 10% over a trial period. Fund A holds 1 stock, Fund B holds 2 stocks that are anti-correlated, and Fund C holds 2 stocks that are positively correlated. Which fund carries the least risk?

B) Fund B

Correct answer: B

Question 143: Which of the following is not an Efficient Market Hypothesis assumption?

D) Single stocks often outperform the market.

Correct answer: D

Question 145: The information coefficient (IC) of a manager is 0.2 . The manager makes monthly bets on 27 stocks. What is the information ratio(IR) (or performance) of the manager?

D) 3.6

Correct answer: D

Question 147: how does Bollinger band predict the price of the stock?

A) the price of the stock is bracketed by an upper and lower band along with a 21-day simple moving average.

Correct answer: A

Question 149: What was the type of the derivative contracts used by the main characters in the film The Big Short?

B) Credit Default Swaps

Correct answer: B

Question 142: Which of the following is false when thinking of a market as a reinforcement problem?

A) Selling is a state

Correct answer: A

Question 144: how does Bollinger band predict the price of the stock?

A) the price of the stock is bracketed by an upper and lower band along with a 21-day simple moving average.

Correct answer: A

Question 146: The equation for Grinold's Fundamental Law of Active Portfolio Management is:

A) Information Ratio (IR) = Information Coefficient (IC) * $\sqrt{\text{Breadth}}$

Correct answer: A

Question 148: What portfolios lie on the efficient frontier?

B) The lowest risk portfolios for each level of return

Correct answer: B

Question 150: Consider trading as a reinforcement learning problem. Which of the following defines the state of the environment of the trading problem?

D) Bollinger Value

Correct answer: D

Question 151: Which of the following is true about the Efficient Market Hypothesis?

B) New information arrives randomly

Correct answer: B

Question 153: If a call option is far 'out of the money' the value of the option will be:

C) Less than the value of a put option with the same exercise price

Correct answer: C

Question 155: If your reward function outputs positive values for correct answers and zero for incorrect answers, what could be causing a wrong policy after training?

A) Not having a balanced number of training instances for each state.

Correct answer: A

Question 157: What is the semi-strong form of Efficient Markets Hypothesis?

A) Tells us that an asset's price reflects all publicly available info

Correct answer: A

Question 159: In which trading horizon is fundamental analysis more valuable than technical analysis?

C) Years

Correct answer: C

Question 152: Using the principles behind portfolio optimization what is one element we should be considering in order to minimise our portfolio risk if our portfolio consists of two stocks?

C) Ensure that the co-variance between the two stocks is negative

Correct answer: C

Question 154: What is a Synthetic CDO?

C) CDO of bets placed based on the performance of other assets

Correct answer: C

Question 156: Consider 5 stocks A, B, C, D and E, each having a daily return of 10%. Following is their covariance matrix :

	A	B	C	D	E
A	1	0.9	-0.9	-0.9	-0.9
B	0.9	1	-0.9	-0.9	-0.9
C	-0.9	-0.9	1	0.9	0.9
D	-0.9	-0.9	0.9	1	0.9
E	-0.9	-0.9	0.9	0.9	1

Which of the following would be most optimal portfolio?

B) 25% A, 25% B, 16.6% C, 16.6% D, 16.6% E

Correct answer: B

Question 158: What does breadth refer to in the Fundamental law of active portfolio management ?

C) Number of trades / Opportunities that the investor has access to

Correct answer: C

Question 160: An option that can be exercised profitably for the holder is said to be ____; otherwise, it is ____.

B) in the money; out of the money

Correct answer: B

Question 161: Which of these is NOT input to Mean-Variance Optimization?

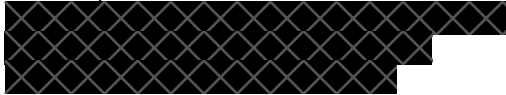


D) Risk

Correct answer: D

Question 163: Which of the following is NOT TRUE in the Fundamental Law

A) information ratio is related to the beta component of the return of a portfolio



Correct answer: A

Question 165: According to the semi-strong form of Efficient Market Hypothesis, people who invest in stocks of a company after the company releases very positive news concerning the stock can expect to earn a/an

A) Normal return because the stock will be fairly priced when bought.



Correct answer: A

Question 167: REQUIRED IMAGE: <https://imgur.com/0TLM8HE> Use the figure linked above to answer the following question: Let this chart represent the efficient frontier for some portfolio, the minimum return denoted by the green line, and the maximum risk by the red line. Which of these portfolio(s) are considered "acceptable"?



D) b

Correct answer: D

Question 169: Which of the following isn't an input to Mean Variance Optimization?



C) Sharpe Ratio

Correct answer: C

Question 162: What's the different steps required to define a Reinforcement Learning problem?



B) Set of states (S), Set of actions (A), Transition function (T), Reward function (R), Policy (π)



Correct answer: B

Question 164: Which of the following is true about weak form of EMH:



B) Ones cannot predict future stock prices on the basis of past stock prices.



Correct answer: B

Question 166: Consider stocks A, B, C. A and B have a positive covariance of 0.8, B and C have a negative covariance of -0.8. Which of the following allocations would have minimum risk, but achieves target returns?



C) A: 0.25 B: 0.25 C: 0.5



Correct answer: C

Question 168: What are the 'layers' of a mortgage bond called (i.e. AAA, BBB, etc.)?



B) Tranches



Correct answer: B

Question 170: John creates a portfolio of assets performing above the efficient frontier. What does this mean?



D) His portfolio is not possible.

Correct answer: D

Question 171: Which of the following is a characterization of the Efficient Markets Hypothesis?

- A) Markets efficiently incorporate all public information, which consequently renders beating the market impossible.

Correct answer: A

Question 173: What is a symptom of "mania" as described in the movie The Big Short?

- B) A rapid rise in complexity and rates of fraud

Correct answer: B

Question 175: What is the equation for Grinold's Fundamental Law?

- A) $\text{performance} = \text{skill} * \sqrt{\text{breadth}}$

Correct answer: A

Question 177: Which choice will increase the information ratio the most?

- D) Increase breadth by 500

Correct answer: D

Question 179: If you think that you can beat the market using only prior trading data, you believe that

- A) The market is inefficient and the weak form of the efficient market hypothesis is false.

Correct answer: A

Question 172: How many shares are typically included in an options contract?

- C) 100

Correct answer: C

Question 174: As you increase the "lookback" period from 5 days to 100 days, how will the line representing the simple moving average (SMA) change?

- B) It will likely become "smoother" looking, with fewer highs and lows.

Correct answer: B

Question 176: Based on the Fundamental Law of active portfolio management, Information Ratio (IR) can be identified as:

- C) The sharpe ratio of excess return.

Correct answer: C

Question 178: In regard to QLearning, which of the following in terms of reward results in faster convergence?

- A) $r = \text{daily return}$

Correct answer: A

Question 180: What is the correct order of building a Q-Learning model: (1) define combined states, actions, rewards (2) choose in-sample training period (3) iterate and update the Q-table (4) implementing backtesting

- A) (1) (2) (3) (4)

Correct answer: A

Question 181: What makes reinforcement learning different from other machine learning paradigms?

A) There is no supervisor, only a reward signal

Correct answer: A

Question 183: Information which is reflected in current market prices with help of past price movements is classified as

A) weak form efficiency

Correct answer: A

Question 185: Which of the following cannot be used for technical analysis?

B) percent bollinger

Correct answer: B

Question 187: The fundamental law states that in order to increase the performance (IR), breadth and information coefficient will have what effect?

- A) If increasing the breadth component by two times the current BR, the IR will increase by two times
- B) If increasing the breadth component by four times the current BR, the IR will increase by two times
- C) If increasing the information coefficient by two times the current IC, the IR will increase by four times
- D) If increasing the information coefficient by four times the current IC, the IR will increase by four times

Question 189: If the semi-strong efficient market hypothesis were proven true, which of the following would remain reliably profitable trading strategies?

B) Trading based on insider information (and getting away with it)

Correct answer: B

Question 182: According to the lectures, which of these is NOT an input to mean-variance Optimization?

D) Asset weights

Correct answer: D

Question 184: According to lectures, which of these is NOT one of the four inputs for mean-variance optimization?

D) Asset Weights

Correct answer: D

Question 186: The CEO of a credit rating agency learns from his CTO that their databases were breached by attackers in a massive attack, but the knowledge has not been made public yet. He tells his family to SHORT his company's stock before the press conference to announce the breach. Under which form(s) of the Efficient Markets Hypothesis will this yield results for his family?

C) Semi-strong and Weak forms

Correct answer: C

Question 188: Which of the following statements about Q-Learning and Dyna is TRUE?

A) Q-Learning is guaranteed to converge to the optimal policy

Correct answer: A

Question 190: When is Technical Analysis effective? Choose correct answers.

B) To look for contrasts (stock vs market)

Correct answer: B

Question 191: Which factor of the Fundamental Law is easiest to improve?



C) Breadth

Correct answer: C

Question 193: When is Technical Analysis effective? Choose correct answers.



B) To look for contrasts (stock vs market)

Correct answer: B

Question 195: In the Coin Flip Casino problem, the risk-adjusted reward in a multi bet scenario is given by:



C) $SR_{single} \cdot \sqrt{BR}$

Correct answer: C

Question 197: Q - Select the statement which is TRUE regarding using RL for market trading?



C) We can look at previous transitions and use a model to form an optimum policy.

Correct answer: C

Question 199: What are the 3 variants of the efficient-market hypothesis?

A) Weak, semi-strong, strong

Correct answer: A

Question 192: From the fundamental law, which will show the best performance?

A) High skill, high breadth

Correct answer: A

Question 194: Which of the following statements about Q learning is true?

A) A low value of alpha means that previous Q value is more strongly preserved.



Correct answer: A

Question 196: Price to earnings ratios show persistent correlation with long-term annualized returns on stocks. This data appears to refute:



B) Semi-strong form of EMH

Correct answer: B

Question 198: Reinforcement Learning can be applied for trading in the following context



C) Predict whether to Buy or Sell

Correct answer: C

Question 200: Q - Which statement is TRUE regarding using Reinforcement Learning for market trading?



C) We can look at previous transitions and use a model to form an optimum policy.

Correct answer: C

Question 201: Which one of the following information would hold us back(not encourage) from applying Technical Analysis for a stock?

- B) Performance of annual, quarterly reports (earnings, employee costs, development costs)

Correct answer: B

Question 203: What do Synthetic CDOs (Collateralized Debt Obligation) primarily invest in?

- D) Credit default swaps

Correct answer: D

Question 205: Which of the following is FALSE based on The Fundamental Law applied to active portfolio management?

- A) Sharpe Ratio grows faster as breadth increases (relative to skill)

Correct answer: A

Question 207: Which of the following statements is FALSE about discounted reward?

- A) The closer gamma is to 1, the less we value rewards in the future.

Correct answer: A

Question 209: Which of the following is NOT assumed by the efficient market hypothesis?

- B) New information arrives predictably.

Correct answer: B

Question 202: What changes in the 1970's led up to the 2008 financial crises?

- B) Mortgage-backed securities were created

Correct answer: B

Question 204: Alice's portfolio has the same mean performance alpha, as well as the same volatility as Bob's portfolio. Alice makes 4 trades per year and Bob makes 64 trades per year. Comparing each of their skill levels in making trades we can say that:

- A) Alice is 4 times more skillful than Bob

Correct answer: A

Question 206: Which form of the Efficient Market Hypothesis prevents profiting from Technical Analysis?

- D) Weak & Semi-Strong & Strong

Correct answer: D

Question 208: Which Efficient Market Hypothesis assumption does not lead to prohibiting fundamental information for making investment decisions?

- A) Large Number of Investors -- since the fundamental information is known to everyone the number of investors does not affect how the information is used
- B) New Information arrives Randomly -- since the fundamental information is released at regular intervals to everyone, there is not randomness in how information arrives
- C) Prices Adjust Quickly -- since the fundamental information is broad knowledge about the company, it does not matter how quickly the price changes

Question 210: Alice's portfolio has the same mean performance alpha, as well as the same volatility as Bob's portfolio. Alice makes 4 trades per year and Bob makes 64 trades per year. Comparing their skill levels in making trades, we can say that:

- A) Alice is 4 times more skillful than Bob

Correct answer: A

Question 211: When trying to maximize reward in reinforcement learning, what formulation is not valid?


B) Markov decision


Correct answer: B

Question 213: When normalizing technical indicators, you divide by:


B) the standard deviation


Correct answer: B

Question 215: When mapping trade to RL, which of these is not considered a state?


C) Selling a Stock


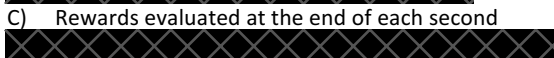

Correct answer: C

Question 217: Given two active investors with two different information ratios. Investor A has an Information Coefficient of 0.02 and executes 1000 independent trades a year. Investor B has an IC of 0.05 and executes 100 trades a year. Which investor is expected to have the highest IR based on the Fundamental Law.

A) Investor A

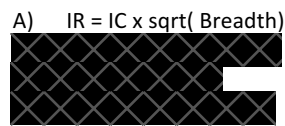

Correct answer: A

Question 219: If given a choice for the frequency that time-series reward values are evaluated by a Q-Learner, which would result in the fastest convergence?


C) Rewards evaluated at the end of each second


Correct answer: C

Question 212: Information Ratio according to Grinolds Fundamental Law is


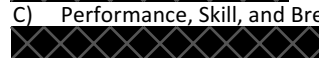
A) $IR = IC \times \sqrt{\text{Breadth}}$


Correct answer: A

Question 214: Consider a European call option for 100 shares of IBM Corporation, whose strike price is \$170 per share and which matures 18 months from now. What does this option entitle you to do?

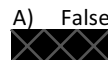
- A) At the maturity date, that is 18 months from now, you have the right, but not the obligation to purchase 100 shares of IBM Corporation for \$170 per share.
- B) Between now and 18 months from now, you are entitled to make a phone call to the European headquarters of IBM Corporation to inquire about the value of 100 shares of IBM.
- C) Between now and 18 months from now, you have the right, but not the obligation to purchase 100 shares of IBM Corporation for \$170 per share.

Question 216: Grinold's Fundamental Law seeks to mathematically relate which facets of investing?


C) Performance, Skill, and Breadth


Correct answer: C

Question 218: Technical analysis considers the intrinsic value of a company:

A) False


Correct answer: A

Question 220: According to the Efficient Market Hypothesis (EMH) a stock can deviate from its fair value market price if it is undervalued or overvalued. Please mark True or False.


B) False


Correct answer: B

Question 221: According to the Fundamental Law of Active Portfolio Management, the information coefficient is defined as:

[REDACTED]

- C) the correlation of portfolio manager's prediction about asset's price with their actual future prices

[REDACTED]

Correct answer: C

Question 223: T/F: Grinold's Fundamental Law applies to passive portfolio management

- [REDACTED]
B) False

Correct answer: B

Question 225: One of the variables for the fundamental law is the skill of investor in selecting securities. How does this investor increase this variable?

- A) Increase his breadth of knowledge

[REDACTED]

Correct answer: A

Question 227: Select the FALSE statement about technical analysis below:

[REDACTED]

- B) An example using technical analysis may take into account stock price, volume, and book value

[REDACTED]

Correct answer: B

Question 229: Current stock price for IBM is \$115/share and custom A buy a option \$110 with 2.75 for December 10th. If IBM stock price drops to \$110/share on that day, how much will customer A lose?

- [REDACTED]
D) 275

Correct answer: D

Question 222: In the Q-Learning algorithm assume we are in the second iteration with an experience tuple. List down the correct sequence of the below given steps to be followed to make sure we correctly update our Q table
1 Information we just learned is taken to improve Q
2 Observe reward and s'
3 State s is computed
4 Q table is set with small random numbers and the time is initialized
5 We consult our policy, or in other words we consult Q to find the best action in the current state

- A) 45321
B) 34512
C) 43521
D) 35421

Question 224: When trading strategy is represented as a reinforcement learning problem, the "reward" parameter represents what value?

[REDACTED]

- B) The return on our investment.

[REDACTED]

Correct answer: B

Question 226: Among four strategies of options, which one's maximum loss is theoretically unlimited? Therefore, we should manage this strategy very carefully.

- [REDACTED]
C) Write Call

Correct answer: C

Question 228: Tom bought 1 option for AAPL of which the strike price is \$110. The price of this option is \$5. Suppose before the expiration date, the stock price of AAPL went up to \$120 and Tom decided to exercise his options, and then sell the stocks at the \$120 position immediately. What is the profit from this series of trades made by Tom? Assume no extra fees such as commissions.

- A) \$500

Correct answer: A

Question 230: Current stock price for IBM is \$115/share and custom A buy an option \$110 with 2.75 for December 10th. If IBM stock price drops to \$110/share on that day, how much will customer A lose?

- [REDACTED]
D) 275

Correct answer: D

Question 231: It is best to select a portfolio along the efficient frontier because:

B) It results in a portfolio optimized for maximum return for a given risk

Correct answer: B

Question 233: Which of these is NOT a correct way of representing the Transition function (T) for a Markov Decision Problem (MDP)

B) $T(s, \pi)$

Correct answer: B

Question 235: The weak version of Efficient Market Hypothesis prohibits us from profiting from fundamental analysis because it says that prices adjust quickly to new public information such as company's quarterly reports.

B) False

Correct answer: B

Question 237: What are the two components to the Q function in Q-learning?

A) immediate reward and discounted reward

Correct answer: A

Question 239: 1) "Amazing Birds", a pet birds chain which primarily sells macaws. 2) "Royal Chicken Burgers", a burger food main, as their name suggests 99% of their menu have on chicken as its main ingredients. 3) "Get Proteins" a Broiler chicken chain. are three hypothetical companies, the stock price of all these companies goes down after the news of an outbreak of Avian flu also known as Birds flu across the globe, what kind of information is this?

- A) Endogenous
- B) Fundamental
- C) Insider
- D) Exogenous

Question 232: Which of the following is NOT a component that defines a Markov Decision Problem.

B) Probabilistic Function P

Correct answer: B

Question 234: You write a call for APPL at a strike price of 112 dollars and a Last value of 1.55. At the option's expiry the price of APPL is valued at 114. Assuming that the option was exercised, what was your profit/loss?

A) -45

Correct answer: A

Question 236: Suppose you want to blend 3 stocks in your portfolio. ABC, LMN, XYZ are the stocks. ABC has a -0.9 covariance with LMN. LMN has a +0.9 covariance with XYZ. What is the best blend of these stocks to minimize portfolio risk?

A) ABC 50%, LMN 25%, XYZ 25%

Correct answer: A

Question 238: If the efficient markets hypothesis is true, then stock prices _____ and returns are _____.

B) fluctuate randomly, normally distributed

Correct answer: B

Question 240: An employee of a company buys 500 shares of the company stock before a major product announcement. Then the price of the stock goes up. Which one of the following assumptions are true?

B) Strong efficient market hypothesis has proved wrong

Correct answer: B

Question 241: What is credit default swap?

- A) A credit default swap is a financial swap agreement that the seller of the CDS will compensate the buyer in the event of a debt default

Correct answer: A

Question 243: Which of the following analyses would become unsuccessful if the form of EMH switch from semi-strong to strong?

- C) Insider

Correct answer: C

Question 245: According to the Fundamental Law of Active Portfolio Management, if the information coefficient is measured at 0.001, how many trades need to be executed in a year in order to attain 40% performance?

- A) 160,000

Correct answer: A

Question 247: Which of the following is an example of a model-free approach to reinforcement learning?

- C) Q-learning

Correct answer: C

Question 249: Which of following statement is not true about the efficient frontier?

- D) Each tangent line of efficient frontier represents the maximum sharp ratio given the target return

Correct answer: D

Question 242: Which of the following statements is FALSE with respect to the EMH(Efficient Markets Hypothesis)?

- A) We can profit by building a portfolio based off of insider information.

Correct answer: A

Question 244: When considering a Reinforcement Learning problem, ALL of the following TRUE, EXCEPT:

- A) 'S' is the series of all previous states that led to our current state

Correct answer: A

Question 246: Which of the following is NOT true about the Fundamental Law of Active Portfolio Management?

- B) Breadth is defined as the number of shares held in a portfolio over the course of a given year.

Correct answer: B

Question 248: Which component is not in the reinforcement learning?

- C) Velocity

Correct answer: C

Question 250: As we move along the efficient frontier towards the origin, is it possible that we get lower return but higher risk?

- B) No

Correct answer: B

Question 251: We want the value of one particular future reward to be 5 after 3 steps ($i=3$) instead of its immediate reward value of 20 at time $= 0$. What should our discount rate be?

B) 0.5

Correct answer: B

Question 253: In following items, which one is NOT a technical analysis indicator?

C) Return on Equity

Correct answer: C

Question 255: If you have built a learner for trading stocks. To increase the Information Ratio, you want:

C) Improve the prediction skills of the learner

Correct answer: C

Question 257: Which of the following statements about technical analysis is not true?

B) Technical analysis Includes price data only

Correct answer: B

Question 259: If Person A's Information Coefficient is 20 times higher than Person B's, then how much higher than Person A does Person B's Breadth of the portfolio need to be in order to match Person A's investments?

C) 400 times

Correct answer: C

Question 252: The goal of an Reinforcement Learning algorithm is to find a policy that maps a policy state to an action such that the future sum of the reward is maximized

A) This statement is true

Correct answer: A

Question 254: Which one of these is not a value used to evaluate a portfolio?

C) Adjusted Closing Price

Correct answer: C

Question 256: What is CDO-square?

B) A CDO backed primarily by the tranches issued by other CDOs

Correct answer: B

Question 258: Which of the following statement about Q-Learning is true?

C) Q-Learning is a model free approach.

Correct answer: C

Question 260: Which of following statement is true when we compare reinforcement learning with supervised learning ?

B) Output is available in supervised learning while it is not available in reinforcement learning

Correct answer: B

Question 261: What serves as feedback from the environment in a RL problem?


B) reward

Correct answer: B

Question 263: Which of the following statements about the efficient frontier is NOT true?

- A) Different points on the efficient frontier have different levels of risk and return.
- B) Points on the efficient frontier are the portfolio allocation with the lowest risk for a given return value.
- C) Points below the efficient frontier represent suboptimal portfolio allocations.
- D) Investors should target portfolios at or above the efficient frontier because the efficient frontier represents portfolios that provide the minimally adequate return for a given level of risk.

Question 265: Which one is/are least expensive environment is used in Dyna ?


B) Simulated environment

Correct answer: B

Question 267: Which of the following best describes the given or initially known information in a general reinforcement learning approach?


C) A set of all possible states and a set of possible actions from each state

Correct answer: C

Question 269: Which option below is not a right description of the different form of EMH?


B) Semi-Strong EMH means prices adjust slowly (no fundamental and technical)


Correct answer: B

Question 262: What does 'shorting the banks' mean?

A) lending in an area, such as the housing market, all while expecting the borrowers to default on their loans

Correct answer: A

Question 264: If the standard deviation of alpha values for a portfolio increases by a factor of 4 (and the mean alpha is unchanged), what will happen to the information ratio (IR) for the portfolio?


C) It will decrease by 4 times

Correct answer: C

Question 266: Which of the following is NOT a characteristic of any version (weak, semi-strong, strong) of the Efficient Market Hypothesis?

A) Can make money on insider information, as it can be leveraged

Correct answer: A

Question 268: Which of the following is a limitation of the Efficient Frontier?

A) Asset returns do not follow a normal distribution

Correct answer: A

Question 270: What is incorrect according to Efficient Markets Hypothesis (EMH)?

- A) The weak form of the EMH suggests that future asset prices cannot be predicted based on historical price data alone.
- B) Technical analysis can be used in weak form of EMH because some market inefficiencies can be exploited
- C) The semi-strong form of the EMH suggests that fundamental and technical analysis are of little use because opportunities have been arbitrated away immediately.
- D) The strong form of the EMH suggests that no known arbitrage opportunities exist.

Question 271: Stock for JPM is: \$200 on 2010-10-01 \$400 on 2010-10-02 \$400 on 2010-10-03 \$100 on 2010-10-04 \$700 on 2010-10-05
Calculate the simple moving average for the stock on 2010-10-04 with a lookback window of 3 days. Also, assuming the price at 2010-10-04 is a large enough excursion from the SMA, would you consider this a buy or sell opportunity?

A) -2/3 buy

Correct answer: A

Question 273: Which components are required to build an experience tuple to be used to find the policy in reinforcement learning?

Correct answer: A

Question 275: If a stock's price was \$50.00 10 days ago and is \$45.00 now, what is the value of the 10-day momentum for this stock?

B) -0.1

Correct answer: B

Question 277: Which of the following statement is false on The Fundamental Law?

C) Breadth (BR) is the number of trading opportunity per day

Correct answer: C

Question 279: If you are 1/100 as smart as Warren Buffet, and he trades 100 times per year, how many times do you need to trade per year in order to get the same risk adjusted reward?

C) 100^3

Correct answer: C

Question 272: Where did Michael Burry work?

A) Scion Capital

Correct answer: A

Question 274: Select the version of EMH for which the following statement holds true: "Future asset prices cannot be predicted using historical price and volume data. "

B) Weak form

Correct answer: B

Question 276: Given two trade strategies with the same expected return (reward), trade strategy A involves a single trade with a Sharpe Ratio of 0.15, while trade strategy B involves 144 trades over a one-year period. What is the Sharpe Ratio of trade strategy B?

B) 1.8

Correct answer: B

Question 278: The subprime lending industry ...

- A) attracted sleazy people
- B) was fragmented
- C) was a fast-buck business
- D) all of the above

Correct answer: D

Question 280: Investor A has an Information Coefficient of .25 and a Breadth of 144. Investor B averages 3% return above the market and the standard deviation of these excess returns is 1%. Select the correct statement comparing the information ratio of the two investors.

C) IR of investor A = IR of investor B

Correct answer: C

Question 281: Given the following closing prices for AAPL, what was the SMA (simple moving average) for the previous five days on Nov 7? Date

Closing Price	Oct 29	\$5	Oct 30	\$6	Oct 31
\$4	Nov 1	\$5	Nov 2	\$8	Nov 5
\$7	Nov 6	\$8	Nov 7	\$10	Nov 8
\$11	Nov 9		\$9		

C) 6.4

Correct answer: C

Question 283: What is the wrong statement about the fundamental law?

C) Sharpe ratio grows as the square of breadth

Correct answer: C

Question 285: The film The Big Short covers the financial crisis of 2007-2008 caused by defaults on mortgage backed debt securities. What is the highest credit rating given to debt securities?

B) AAA

Correct answer: B

Question 287: Which of the following is NOT true about reinforcement learning :

B) It learns from experience by interacting with the environment but not affecting it

Correct answer: B

Question 289: Which of the following option operations has an unlimited potential loss?

C) WRITE CALL

Correct answer: C

Question 282: Jason bought an European call option with exercise price of 100 dollars for stock A, when it expires the stock price is 80 dollars.

C) Jason will not lose or make money

Correct answer: C

Question 284: Which Iteration method in reinforcement learning starts with random policy ?

A) Policy Iteration

Correct answer: A

Question 286: Which of the following statements best describes a CDO (Collateralized Debt Obligation)

- A) A structured financial product that pools together assets such as loans or mortgages, and repackages this asset pool into securities that can be sold to investors.
- B) In a restaurant, CDOs is a Seafood stew that is prepared using unsold old fish
- C) CDOs are mortgage bonds that are at a risk of default.
- D) CDOs are swaps are insurance policies against non payment or debt defaults. The buyer of such swaps will be entitled to settlement payment specified in the contract should the issuer default on payments.

Question 288: What form of the EMH says future prices cannot be predicted by analyzing historical prices?

A) Weak

Correct answer: A

Question 290: Which of the following statements about the fundamental law is true?

D) IR measures the skill of the Portfolio Manager

Correct answer: D

Question 291: According to the movie, "The Big Short", and Michael Burry, what would trigger the collapse of the housing market:

A) The rise in variable interest rates

Correct answer: A

Question 293: Which expression is the pseudocode for momentum?

B) $(\text{price}[t]/\text{price}[t-n]) - 1$

Correct answer: B

Question 295: Which statement best describes a mortgage bond?

B) Cash collected from a pool of many individual home mortgages

Correct answer: B

Question 297: Which of these investment factors was Richard Grinold NOT trying to relate to one another with the Fundamental Law?

C) SPY Prices

Correct answer: C

Question 299: Why do Michael Burry's clients get upset with him?

C) Burry shorts the housing market

Correct answer: C

Question 292: Which of the following is not an RL algorithm we can use to find a good policy when mapping trading to Reinforcement Learning?

D) Stock Iteration

Correct answer: D

Question 294: Which of the following statements is false?

A) Model-based reinforcement learning develops a policy by looking at the data.

Correct answer: A

Question 296: According to the Noble Scientist Harry Markowitz, who is best known for his pioneering work in Modern Portfolio Theory, which of the following is true: (Please select one best answer):

C) Blend of Stocks and Bonds could be lowest risk assets than either one of them individually

Correct answer: C

Question 298: Why weren't Jamie and Charlie from Cornwall Capital initially able to make large bets against credit default swaps?

A) They didn't have an ISDA (International Swaps and Derivatives Association) master agreement.

C) Their portfolio was considered small by the large Wall Street banks.

D) Both A and C.

Correct answer: D

Question 300: The efficient frontier is:

A) the set of optimal portfolios that offers the highest expected return for a defined level of risk or the lowest risk for a given level of expected return

Correct answer: A

Question 301: Which of the following may be an argument against the Efficient Market Hypothesis?

- B) A stock's value can be assessed differently by different investors and a stock's price typically takes time to respond to the market

Correct answer: B

Question 303: Which of the following assumptions regarding Efficient Markets Hypothesis is FALSE?

- C) Prices adjust slowly

Correct answer: C

Question 305: Which equation is correct according to Grinold's Fundamental Law?

- B) $\text{Information Ratio} = \text{Information Coefficient} * \sqrt{\text{Breadth}}$

Correct answer: B

Question 307: There are 2 portfolio managers: A and B. B makes 4 times the number of trades than that of A in a year. If B has a correlation of greater than 0.5 with the actual returns then what should A's correlation with actual returns be in order to outperform B

- D) A cannot outperform B

Correct answer: D

Question 309: The point at which the tangent line from origin hits the efficient frontier gives us _____

- B) Max Sharpe Ratio

Correct answer: B

Question 302: The efficient frontier is:

- A) the set of optimal portfolios that offers the highest expected return for a defined level of risk or the lowest risk for a given level of expected return

Correct answer: A

Question 304: A and B are two friends who have the same Information Ratio. B has an algorithm that is 5000 times better than that of A, and B trades 100 times a year. How many times does A trade in a year?

- C) 2500000000

Correct answer: C

Question 306: As explained in the movie 'The Big Short', _____ are investments that are repackaged by small regional banks as a means of funding mortgages by reselling them as securities through investment markets. Fill in the blank from an option below:

- B) Mortgage-backed securities (MBS)

Correct answer: B

Question 308: Stock options are sold from one party to another, given the option buyer _____ to buy or sell a stock at a pre-agreed price within a certain period of time.

- B) the right but not the obligation

Correct answer: B

Question 310: The Information Ratio (IR) is the same calculation as _____, but only on the "skill" portion of the return. (Fill in the blank)

- B) Sharpe Ratio

Correct answer: B

Question 311: Which of the following is true according to The Big Short movie?

- A) Mark Baum shorted the Collateralized Debt Obligation by borrowing Mortgage Baked Securities to Deutsche Bank via Jared Vennet, selling them early at high price, buying them back after the market collapsed, and then returned them to the counterparties with some interests.
- B) Charlie Geller and Jamie Shipley made money by buying Credit Default Swap, practically an insurance for Collateralized Debt Obligation they did not have.
- C) Ben Rickert made more money than Michael Burry, because unlike Scion Capital, Brownfield Fund put a bet against AA's with a 200 to 1

Question 313: Which of the following is NOT one of the assumptions EMH makes?

- C) New information arrives in a predictable way

Correct answer: C

Question 315: Which of the following is an assumption used in the Efficient Market Hypothesis?

- A) prices adjust quickly

Correct answer: A

Question 317: Which of the following statements is NOT an assumption of the Efficient Market Hypothesis?

- C) Prices adjust slowly.

Correct answer: C

Question 319: Which of the following can be an optional element of a Reinforcement Learning System?

- D) Model

Correct answer: D

Question 312: According to the Q function, which statements are true regarding the Learning Rate, Alpha, and the Discount Rate, Gamma?

- B) For valuing later rewards very significantly, we expect a high value of the Discount Rate, Gamma.

Correct answer: B

Question 314: The EMH has three forms. The weakest one establishes that the level of information barely affects prices. What is true about future prices given the above?

- A) Future prices cannot be predicted because unpredictable external events may influence the prices.
- B) Future prices can be predicted because historical prices are used as an indicator.
- C) Future prices may be possible to predict based on information of price, volume and exogenous information.
- D) Future prices can be predicted, however not based on fundamentals.

Question 316: Which of the following form(s) of EMH prohibit profiting from Technical Analysis?

- A) Weak EMH
- B) Semi-strong EMH
- C) Strong EMH
- D) All

Correct answer: D

Question 318: Which strategy expose risk of unlimited lose (if executed alone)?

- B) Write Call

Correct answer: B

Question 320: If stock price has gone up from 99.9 to 100.1 from yesterday to today. What kind of price movement is expected for call option of strike price 100 with same expiration date?

- D) It's hard to say

Correct answer: D

Question 321: What are the advantages of buying simple options over stocks?

- A) Cannot lose more than the premium paid up-front.
- C) Leverage.
- D) Both A) and C)

Correct answer: D

Question 323: If the weak form of the Efficient Market Hypothesis is true, which of the following is right?

- D) Insider trading will work for the weak form

Correct answer: D

Question 325: The Grinold (1989) "Fundamental Law of Active Management" asserts that the maximum attainable. Select all which are correct

- B) Information Ratio is directly proportional to Information Coefficient

Correct answer: B

Question 327: Assume we have the return vs risk graph of Efficient Frontier, with Optimal CAL (Capital Allocation Line, a line from the origin to the tangent to the frontier) line added in. Which of the following is true?

- A) The point where Optimal CAL line hits the Efficient Frontier represents the minimum risk portfolio for the assets.
- B) The Efficient Frontier curve shows that, as we lower the return, the risk will always go down.
- C) The point where Optimal CAL line hits the Efficient Frontier represents the maximum Sharpe ratio portfolio for the assets.
- D) The Efficient Frontier curve only represents lowest return for each of the risks.

Question 329: Consider the following two statements: a. Q-learning is a model-free method. b. In Q-learning, to find the maximum reward, a fixed horizon is used. State whether these are true or false. The first and second truth values in the answers below correspond to statement a and b respectively.

- B) True, False

Correct answer: B

Question 322: Which of the following is FALSE regarding learning rate "alpha" in Q-learning?

- D) In a stochastic environment, we can consider using constant learning rate $\alpha = 0$.

Correct answer: D

Question 324: In Reinforcement Learning, which of the following parameter can either be a STATE or a REWARD?

- C) Daily Returns

Correct answer: C

Question 326: The movie described a synthetic collateralized debt obligation (synthetic CDO) as a vehicle allowing \$50 million in subprime loans to...

- B) become inflated through side bets to around \$1 billion

Correct answer: B

Question 328: Which among these is/are inconsistent with the three forms of Efficient Market Hypothesis?

- A) Portfolios of stocks with low price-earnings (P/E) multiples have tended to provide higher returns than portfolios of stocks with high P/E ratios.
- B) Professional money managers do not typically earn higher returns than comparable passive index strategies.
- C) Market prices reflect all publicly available information concerning past trading history as well as fundamental aspects of the firm.
- D) Most tests of technical analysis find that it is difficult to identify price trends that can be exploited to earn superior risk-adjusted investment returns.

Question 330: What mathematical equation best describes Grinold's Fundamental Law?

- A) $\text{performance} = \text{skill} * \sqrt{\text{breadth}}$

Correct answer: A

Question 331: The fundamental law is represented as -

A) $IR = IC * \sqrt{BR}$

Correct answer: A

Question 333: The fundamental law is represented as -

A) $IR = IC * \sqrt{BR}$

Correct answer: A

Question 335: The fundamental law is represented as -

A) $IR = IC * \sqrt{BR}$

Correct answer: A

Question 337: A call option with a \$60 strike price expires in two months and sells for \$3. If the underlying stock is priced at \$65 at expiration, you will get a ()

D) \$2 profit

Correct answer: D

Question 339: Portfolio Optimization and the Efficient Frontier

Question: Standard deviation of daily returns is usually used as a measure of risk. Among the options below, which one would be the best alternative way to measure risk?

D) Beta - or something else like Sortino Ratio

Correct answer: D

Question 332: In order to ensure that assets value increases in low-risk portfolio, assets should be A: anti-correlated in short term B: positively correlated in long term.

A) A
B) B
C) Both A and B

Correct answer: C

Question 334: What is the main advantage of a model-free approach like Q-Learning?

B) Q-Learning can easily be applied to domains where all states and/or transitions are not fully defined

Correct answer: B

Question 336: In the Q-Learning algorithm assume we are in the second iteration with an experience tuple. List down the correct sequence of the below given steps to be followed to make sure we correctly update our Q table
1 Information we just learned is taken to improve Q
2 Observe reward and s'
3 State s is computed
4 Q table is set with small random numbers and the time is initialized
5 We consult our policy, or in other words we consult Q to find the best action in the current state

A) 45321
B) 34512
C) 43521
D) 35421

Question 338: In Q-Learning, $Q[s,a]=?$

C) Immediate reward + discounted reward

Correct answer: C

Question 340: Why did Michael Burry close his fund after obtaining big returns?

C) He was bummed by ongoing litigation and audits

Correct answer: C

Question 341: What is one major difference between US style stock options and European style stock options?

- C) US style stock options allow you to exercise the option up to and including the expiration date, whereas European options only allow you to exercise the option on the expiration date.

Correct answer: C

Question 343: Supposed that you are a hedge fund manager and your fund performs really well. Your fund produces similar returns as Warren Buffet's (The Information Ratio is the same), but the strategy you use is very different from Warren Buffet. Warren Buffet holds only 100 stocks for the entire year, while you run a machine learning algorithm to trade stocks at a rate of 10000 times/ per day. Which of the following equations can illustrate the relationship between the skill of your machine learning strategy and the skill of Warren Buffet?

- A) $\text{Skill}(\text{Your strategy}) = (100 \wedge 0.5 / (10000 * 252) \wedge 0.5) * \text{Skill}(\text{Warren Buffet})$
B) $\text{Skill}(\text{Your strategy}) = (100 / (10000 * 252)) * \text{Skill}(\text{Warren Buffet})$
C) $\text{Skill}(\text{Your strategy}) = (100 / (10000)) * \text{Skill}(\text{Warren Buffet})$

Question 345: Technical analysis looks at what kind of information? 1. Volume 2. Cumulative return 3. Stock price 4. Sharpe ratio

- B) 1 and 3

Correct answer: B

Question 347: Which of the following statement is true? The reinforcement learning can be mapped to trading as follows:

- A) S: the states of the market, A: the buy, sell, do nothing actions, T: the trades completed, R: the money made at the end of the trade
B) S: the features and indicators of the stocks, A: the buy, sell, do nothing actions, T: the market, R: the money made at the end of the trade
C) S: the available states of the robot, A: the assets currently in portfolio, T: the transition functions used to determine buy and sell actions, R: the robot used to make decisions
D) The reinforcement learning can not be mapped to trading.

Question 349: Which of the following is a correct way to describe the Transition function $T[s,a,s']$ in Markov Decision Problems (MDP)?

- D) probability that we are in state s and we take action a, we get new state s'

Correct answer: D

Question 342: What is the difference in value iteration and policy iteration methods in Reinforcement Learning?

- A) Value Iteration: At each iteration of evaluation of all states of your environment, you increment the value of a state depending on values of neighbour states, you do this until all your environment is covered
B) Policy Iteration: At each iteration of evaluation of all states of your environment, you increment the value of a state depending on values of neighbour states, you do this until all your environment is covered
C) Value Iteration: Evaluate the action of your process at each iteration, so that you improve your control law or policy. here you

Question 344: Which one of the statements below is correct considering moving average?

- A) A moving average helps remove daily fluctuation from analysis.

Correct answer: A

Question 346: From The Big Short, what is the hot hand fallacy?

- D) The success of the housing market indicated future success of the market.

Correct answer: D

Question 348: Which of the following is NOT part of Fundamental Analysis?

- D) Trading Volume

Correct answer: D

Question 350: Reinforce Learning: Which is below way to find policy doesn't belong to same group? a. Build model of transition function with parameter state, action and next state. b. Build model of reward function with parameter state and action. c. Build model of iteration all state and action to find average. d. Q-learning without model

- D) Q-learning without model

Correct answer: D

Question 351: If I have insider information that I am able to use to make a profit off through trading, which form(s) of the Efficient Markets Hypothesis (EMH) could apply?

- A) Weak form
- B) Semi-strong form
- C) Strong form
- D) A and B

Correct answer: D

Question 353: Base on the film and the real world, the crush of which type of the product in the following would give the most impact to the market?

- A) CDO, the CDO from CDO
- B) CDO, the CDO from CDO
- C) CDO, the CDO from CDO
- D) CDO², the CDO from CDO

Correct answer: D

Question 355: Which of the following best describes the factors taken into account in Technical Analysis ?

- A) Technical Analysis looks only at Historical Price and Volume of the stock
- B) Technical Analysis looks only at Historical Price and Volume of the stock
- C) Technical Analysis looks only at Historical Price and Volume of the stock
- D) Technical Analysis looks only at Historical Price and Volume of the stock

Correct answer: B

Question 357: Mean Variance Optimization (MVO) uses a set of inputs to return a set of asset weights that minimize risk. Which of the following inputs is NOT used in the calculation of MVO?

- A) Sharpe Ratio
- B) Sharpe Ratio
- C) Sharpe Ratio
- D) Sharpe Ratio

Correct answer: C

Question 359: What is risk?

- A) Standard deviation of historical daily returns
- B) Standard deviation of historical daily returns
- C) Standard deviation of historical daily returns
- D) Standard deviation of historical daily returns

Correct answer: A

Question 352: What is the main difference between US and European style stock options?

- A) Under EU style, you can't choose to exercise your option prior to expiration date, but it is convenient for US style
- B) Under EU style, you can't choose to exercise your option prior to expiration date, but it is convenient for US style
- C) Under EU style, you can't choose to exercise your option prior to expiration date, but it is convenient for US style
- D) Under EU style, you can't choose to exercise your option prior to expiration date, but it is convenient for US style

Correct answer: B

Question 354: Base on the film and the real world, the crush of which type of the product in the following would give the most impact to the market?

- A) CDO, the CDO from CDO
- B) CDO, the CDO from CDO
- C) CDO, the CDO from CDO
- D) CDO², the CDO from CDO

Correct answer: D

Question 356: What is an example of exogenous data for an airline stock?

- A) The price of oil
- B) The price of oil
- C) The price of oil
- D) The price of oil

Correct answer: A

Question 358: According to Black-Scholes Option Pricing Model, which one of the following assumptions isn't true?

- A) Transactions costs would be applied.
- B) Transactions costs would be applied.
- C) Transactions costs would be applied.
- D) Transactions costs would be applied.

Correct answer: D

Question 360: How are the stock returns for two independent (non-overlapping) time periods related in an efficient market:

- A) No correlation
- B) No correlation
- C) No correlation
- D) No correlation

Correct answer: A

Question 361: What was Burry's move after he predicted the housing market bubble?

- B) He contacted multiple banks to convince them that the bonds will fail and to create a credit default swap market

Correct answer: B

Question 363: According to the fundamental law, which way can a manager or fund improve their performance?

- A) Increase the number of trading opportunities per year

Correct answer: A

Question 365: Which of the following is a model-free learning?

- C) Q-learning

Correct answer: C

Question 367: Which of the following statement about options is NOT correct?

- B) Options do not have expiration date.

Correct answer: B

Question 369: What does alpha represent in the Q learning update formula? $Q'[s, a] = (1 - \alpha) \cdot Q[s, a] + \alpha \cdot (r + \gamma \cdot Q[s', \text{argmax}_{a'}(Q[s', a'])])$

- C) alpha is the learning rate used to vary the weight given to new experiences compared with past Q-values

Correct answer: C

Question 362: According to epsilon greedy strategy, when should we set higher epsilon rates during the training phase?

- A) Beginning of the training

Correct answer: A

Question 364: When writing a call option, how can you hedge against infinite maximum losses?

- A) Own the underlying asset
B) Buy a call option on the same asset
C) A and B

Correct answer: C

Question 366: The Relative Strength Index is a leading indicator.

- A) True

Correct answer: A

Question 368: David is a stock trading expert and he can profit significantly with only 100 trades per year. Sherry developed a high frequency trading algorithm, and her algorithm is $1/10000$ as smart as David's trading strategy. For Sherry, in order to achieve one half of David's Information Ratio, how many trades must she performed each year?

- D) 2,500,000,000

Correct answer: D

Question 370: What following portfolio statistics would not be a good state to train your q-learning algorithm on?

- B) SMA

Correct answer: B

Question 371: What is a benefit of reinforcement learning?

B) We can observe unknowns and assign rewards to them to reach a goal.

Correct answer: B

Question 373: If a stock price for today is \$110 and an option for \$108 call was \$300 for 100 shares. If you buy the option and use the option to buy 100 shares after a week when the stock price increases into \$120, how much will be your benefit if you ignore trading fee?

C) 900

Correct answer: C

Question 375: You find a bet that you can predict accurately 55% of the time. You bet \$100 dispersed over x bets of \$0 or greater each. The standard deviation of the returns of making the bet that many times is 5. What is the risk adjusted reward of making these bets?

A) 2

Correct answer: A

Question 377: You find a bet that you can predict accurately 55% of the time. You bet \$100 dispersed over x bets of \$0 or greater each. The standard deviation of the returns of making the bet that many times is 5. What is the risk adjusted reward of making these bets?

A) 2

Correct answer: A

Question 379: What financial instrument did Michael Burry (portrayed by Christian Bale) use to short the housing market?

C) Credit default swaps

Correct answer: C

Question 372: _____ is an example of a reward in a Reinforcement Learning trading problem.

C) cumulative return

Correct answer: C

Question 374: Which options strategy would be the best if you could successfully predict the market to rise sharply in a future period?

B) Buy a call option

Correct answer: B

Question 376: In the context of reinforcement learning, what is the daily return?

C) Both A and B

Correct answer: C

Question 378: Which of the following is NOT TRUE about Grinold & Kahn's Fundamental Law Of Active Management?

C) IC can be estimated a priori with precision

Correct answer: C

Question 380: According to Grinold's simplified Fundamental Law of Active Portfolio Management, which is a possible explanation for a three-fold increase in performance?

B) A nine-times increase in the number of trades.

Correct answer: B

Question 381: What does $Q(\text{state}, \text{action})$ return?

C) Expected future reward of the given action at given state.

Correct answer: C

Question 383: Among the following, what qualities of the trading decision would make technical analysis more valuable than fundamental analysis in reaching it?

D) LOW decision complexity, LOW decision time

Correct answer: D

Question 385: which one of the followings is not an advantage of buying options?

D) has an expiration date

Correct answer: D

Question 387: What is the purpose of the $\pi(s)$ function with regard to Reinforcement Learning, where s is a state?

A) It is a policy that defines the action which maximizes the reward in state s

Correct answer: A

Question 389: In the context of a Markov Decision Problem(MDP) when every experience tuple for an environment in the format $\langle s, a, s', r \rangle$ is known... I would use a _____ to determine _____. However, if no knowledge of the environment exists then _____ is a viable approach to develop the policy π

- A) Model Based reinforcement learning approach, $T[s, a, s']$ and $R[s, a]$, Q-learning
- B) Model Free reinforcement learning approach, $T[s, a, s']$ and $R[s, a]$, Q-learning
- C) Value iteration, $R[s, a]$, Policy iteration
- D) Model Based reinforcement learning approach, $T[s, a, s']$, Value iteration

Question 382: Which of the following Efficient Markets Hypothesis assumptions is false?

D) A small number of investors

Correct answer: D

Question 384: Which of the following is evidence against the strong Efficient Markets Hypothesis but consistent with the semi-strong Efficient Markets Hypothesis?

B) People often profit from insider trading, and as such it is illegal in the U.S.

Correct answer: B

Question 386: Which of the following factors is not considered by Grinold's Fundamental Law?

B) Experience

Correct answer: B

Question 388: In Markov Decision Problems, the transition function has three attributes. One of the attributes is the future state (s'). What is the sum of all the next states we might end up in?

C) 1

Correct answer: C

Question 390: When to use Butterfly strategy in options trading?

C) When the market goes sideways

Correct answer: C

Question 391: What type of technique is Q-Learning?

C) reinforcement learning

Correct answer: C

Question 393: Why the adjusted close is not a good state variable for the Q-learning algorithm?

A) Because you are not able to generalize well to different price ranges.

Correct answer: A

Question 395: A learning rate of 1.0 means

C) the new q-value ignores its prior q-value

Correct answer: C

Question 397: What is the worst case scenario of purchasing an option?

A) Losing the premium

Correct answer: A

Question 399: Risk of two securities with different expected return can be compared with:

A) Coefficient of variation

Correct answer: A

Question 392: Mathematically, Information Ratio is equal to information Coefficient times the square root of breadth. Please select all that applies

- A) Performance of the fund is due to the skills at making prediction times the square root of breadth
- B) If you want to improve your performance you can either improve on your skills or your breadth
- C) It is a lot easier to increase breadth by finding additional stocks or commodities
- D) All of the above

Correct answer: D

Question 394: Which of the following statement about Q-Learning is wrong?

C) Q-Learning is a model-free approach, thus it is similar to other RL learning processes with the transitions T and the rewards R.

Correct answer: C

Question 396: Which form of Efficient Market Hypothesis (EMH) says we cannot make money in stock market based on insider information.

A) Strong

Correct answer: A

Question 398: 1. Technical analysis is more valuable for:

A) Shorter time periods

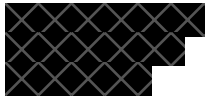
Correct answer: A

Question 400: What is the strong-form of the efficient market hypothesis?

- A) Prices already reflect past publicly available information.
- B) Price changes to instantly reflect new public information.
- C) Prices reflect hidden insider information.
- D) All of the above.

Correct answer: D

Question 401: Let say you are using reinforcement learning to makes trades, which of the following could be considered a reward for your trades?



D) Daily Return

Correct answer: D

Question 403: According to the Noble Scientist Harry Markowitz, who is best known for his pioneering work in Modern Portfolio Theory: (Please select the best answer from the following options):



C) Blend of Stocks and Bonds could be lowest risk assets than either one of them individually



Correct answer: C

Question 405: Over the last year, the average alpha(from CAPM) of your investment fund was 2.0, and the standard deviation of alpha was 0.3, while making 10,000 trades. Rachel, a young and aspiring fund manager who graduated from Georgia Tech, wants to join your investment firm. Over the last year, her mean alpha value was 0.7, and the standard deviation of her alpha value was 0.4, while making 400 trades. You will solely use Information Coefficient to compare the skills between your investment fund and Jane. What is the Information Coefficient of your investment fund, and should you let Jane join your firm?? (The fact that Jane is from Georgia Tech must not affect your decision!)

- A) 2/15, YES
- B) 1/15, NO

Question 407: Which of the following statements is NOT TRUE about Reinforcement Learning?



C) Reinforcement Learning describes a solution for finding the optimal trading strategy.



Correct answer: C

Question 409: The Information Ratio (IR) is directly proportional to: I. manager's skill in forecasting prices II. square root of manager's skill in forecasting prices III. number of independent trading opportunities over time IV. square root of the number of independent trading opportunities over time Choose the correct statements from above:

B) I and IV only



Correct answer: B

Question 402: What is the sum of all probabilities s' in the transition function?



C) 1



Correct answer: C

Question 404: Assume there is a call option for future X. If the price of future X is 80 dollars, and the call option allows buying the future at price of 90 dollars. What's the price of this call option?



C) 0



Correct answer: C

Question 406: Which activity below will increase the breadth of a portfolio management?



B) Trade one stock more frequently.



Correct answer: B

Question 408: When can dynamic programming methods be used to solve a Markov decision process?

A) When the environment can be perfectly modeled and no direct interaction is required



Correct answer: A

Question 410: Which of the following is a correct statement regarding the strong form of Efficient Market Hypothesis (EMH)?



C) It says you can't profit from technical, fundamental or insider analysis



Correct answer: C

Question 411: What is true about the Efficient Frontier?

B) All portfolios below the frontier are sub-optimal in some way

Correct answer: B

Question 413: Who first invented the Fundamental Law where performance equals to skill times root of breadth?

C) Richard Grinold

Correct answer: C

Question 415: The Information Coefficient is defined as:

A) The correlation of forecasts to returns.

Correct answer: A

Question 417: Which of the following is true about the coin flip casino lessons?

B) More execution opportunities provide a higher Sharpe Ratio

Correct answer: B

Question 419: Which one of these is NOT a Efficient Markets Hypothesis form?

D) Semi-weak

Correct answer: D

Question 412: Suppose you write a call option for a stock with a premium of \$3.14 per share. If you write 100 shares, what is the maximum loss you could experience?

D) inf

Correct answer: D

Question 414: Which option is correct about Efficient Market Hypothesis (EMH)?

B) EMH assumes that there are a large numbers of investors

Correct answer: B

Question 416: Which of the following portfolios would perform the best given Grinold's Fundamental Law of Active Portfolio Management?

D) 49 stocks managed by a manager skill of 10

Correct answer: D

Question 418: According to the fundamental law of managing an active portfolio, which method is the most effective way to increase your performance in the market?

B) Improve your algorithm of trading while keeping the number of trades the same

Correct answer: B

Question 420: Which of the following pieces of information is NOT used by Markov decision processes to find a policy?

D) Gamma, a weight of future reward values

Correct answer: D

Question 421: Which of the following describe trading strategies one would expect to use in momentum trading?

B) Buy high, sell higher

Correct answer: B

Question 423: When you buy a stock and write a call of it, which of the following situations can maximize your profit without making you lose your stock?

B) The stock price ends up but below strike

Correct answer: B

Question 425: Concerning Black and Scholes' dynamic hedging technique, which of the following served as the critical piece in solving the problem of having to continuously recalculate risk?

A) Ito Calculus

Correct answer: A

Question 427: Which factor is NOT considered for Mean Variance Optimization (MVO)?

D) Sharpe ratio

Correct answer: D

Question 429: When market is strong-form efficient, which of the following will not happen?

D) Momentum strategy outperform for 50 years

Correct answer: D

Question 422: When you buy a stock and write a call of it, which of the following situations can maximize your profit without making you lose your stock?

B) The stock price ends up but below strike

Correct answer: B

Question 424: What kind of risk is reduced by diversification?

B) Specific risk

Correct answer: B

Question 426: Which of the following four investors is likely to perform the best given the following information coefficients (ICs) and number of investments? Investor 1: $IC = 3$ $N = 25$ Investor 2: $IC = 5$ $N = 9$ Investor 3: $IC = 4$ $N = 4$ Investor 4: $IC = 4$ $N = 16$

D) Investor 4

Correct answer: D

Question 428: The portfolios lie alone the efficient frontier is:

C) the lowest risk portfolios for all return levels

Correct answer: C

Question 430: which of the following is not part of the technical analysis?

A) calculate book value

Correct answer: A

Question 431: Which one of the following choices is NOT TRUE about options?

[REDACTED]

D) Options can be held on like stocks.

Correct answer: D

Question 433: Considering the Semi-Strong form of Efficient Market Hypothesis, which of the following choices is incorrect?

[REDACTED]

D) Technical analysis works much better than fundamental analysis in this form.

Correct answer: D

Question 435: What is the reason that the main characters in "The Big Short" decide in credit default swaps?

- A) They all read a paper that predicted the possible stock market crash.
- B) They all noticed that the housing loan market was inflated with high risk loans being structured into loan packages with a AAA rating (low risk rating)
- C) They all noticed that the housing loan market was inflated with medium risk loans being structured into high risk loan packages like BB to CCC
- D) They all got tipped off by the SMA for housing loan market predicting a change in the trend

Question 437: Which of these is an invalid allocation of my portfolio if my portfolio consists of AMZN, MSFT, GOOG, FB?

[REDACTED]

B) 0.2, 0.4, 0.6, 0

Correct answer: B

Question 439: Two investors have equal active portfolio performance. One investor successfully doubles his skill. Using the Law of Active Portfolio management, how should the other investor adjust his breadth to match the performance of the first investor?

[REDACTED]

C) Quadruple breadth

Correct answer: C

Question 432: Which is false concerning different parts of the Q-learning algorithm

[REDACTED]

D) A learning rate of 1 weights new information highly.

Correct answer: A

Question 434: What is the reason that the main characters in "The Big Short" decide in credit default swaps?

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- C) They all noticed that the housing loan market was inflated with medium risk loans being structured into high risk loan packages like BB to CCC
- D) They all got tipped off by the SMA for housing loan market predicting a change in the trend

Question 436: Which of the following is NOT an assumption taken under EMH?

[REDACTED]

D) New Information is predictable

Correct answer: D

Question 438: Which step is NOT used to BUILD a Q-Learning Model? Please check all that applies

[REDACTED]

D) Backtest on later data

Correct answer: D

Question 440: Which of these is an invalid allocation of my portfolio if it consists of AMZN, MSFT, GOOG, FB?

[REDACTED]

B) 0.2, 0.4, 0.6, 0

Correct answer: B

Question 441: Based on Mean Variance Optimization (MVO), one should look for stocks that have:

- A) anti-correlation in short terms and positive-correlation in long terms

Correct answer: A

Question 443: Which of the following is true for a portfolio created from a group of assets (Choose one)?

- B) The standard deviation of the portfolio can be smaller than the standard deviation of each of the individual assets

Correct answer: B

Question 445: Bill's Information ratio is 3 times that of Mary's. They both have the same skill (Information Coefficient). How could the difference be explained?

- C) Bill has 9 times the number of trading opportunities (breadth) as Mary.

Correct answer: C

Question 447: Weak form of the EMH predicts that you can't predict future prices by looking at historical prices

- A) True

Correct answer: A

Question 449: A Markov decision problem is NOT defined by:

- C) the potential rule

Correct answer: C

Question 442: What are the correct 3 forms of the hypothesis

- B) weak, semi-strong, strong

Correct answer: B

Question 444: Who received a Nobel Prize for "Efficient Markets Hypothesis (EMH)"?

- B) Eugene Fama

Correct answer: B

Question 446: Weak form of the EMH predicts that you can't predict future prices by looking at historical prices

- A) True

Correct answer: A

Question 448: Which of the following statement is true? The reinforcement learning can be mapped to trading as follows:

- A) S: the states of the market, A: the buy, sell, do nothing actions, T: the trades completed, R: the money made at the end of the trade
B) S: the features and indicators of the stocks, A: the buy, sell, do nothing actions, T: the market, R: the money made at the end of the trade
C) S: the available states of the robot, A: the assets currently in portfolio, T: the transition functions used to determine buy and sell actions, R: the robot used to make decisions
D) The reinforcement learning can not be mapped to trading.

Question 450: Which of the following statement is true? The reinforcement learning can be mapped to trading as follows:

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C) S: the available states of the robot, A: the assets currently in portfolio, T: the transition functions used to determine buy and sell actions, R: the robot used to make decisions
D) The reinforcement learning can not be mapped to trading.

Question 451: Which statement is not true ?

- B) Anti-correlation is good strategy for long term, an positive correlation is good for short term to maximize your return.

Correct answer: B

Question 453: Which of the following actions is NOT considered technical analysis of a stock?

- D) Calculating the book value of the stock

Correct answer: D

Question 455: What did Charlie Gellerand and Jamie Shipley realize when Bear Stearns claimed that the price of the CDOs that they wanted to short did not move?

- A) Charlie Gellerand and Jamie Shipley were wrong. The price of the CDOs should stay the same.
B) Charlie Gellerand and Jamie Shipley were wrong. The price of the CDOs should go up.
C) Charlie Gellerand and Jamie Shipley were right. The price of the CDOs should go down due to subprime mortgage losses.
D) Charlie Gellerand and Jamie Shipley were right. The price of the CDOs should go down because people were paying their mortgages on time.

Question 457: What is the outcome of the policy function in reinforcement learning? A. The Q value of the current state B. The optimal action of the current state C. The probability distribution of next states given an action D. None of above

- B) Correct

Correct answer: B

Question 459: For what value of lambda with discounted reward optimization, you will reach \$1 million faster?

- A) 0.75

Correct answer: A

Question 452: Harry Markowitz showed that if you wanted the lowest risk returns, what should you buy?

- C) A Blend of Stocks and Bonds

Correct answer: C

Question 454: Which of the following is not true about Q-Learning?

- A) Q-Learning cannot be applied to problem domains where all states are not fully defined.

Correct answer: A

Question 456: Which of the following is not a Technical Indicator?

- A) Price / Earnings ratio

Correct answer: A

Question 458: How does the alpha and gamma values in Q-learning relate to the agent learning/update?

- B) The agent learns more quickly with larger alpha value and values later rewards more with larger gamma

Correct answer: B

Question 460: In S&P credit rating, which rating means the best rating?

- B) AAA

Correct answer: B

Question 461: What are components of Markov decision Problem?

C) Set of States, Set of actions, Transition functions, Reward function.

Correct answer: C

Question 463: In the fundamental law, the given equation is $IR = IC * \sqrt{VBR}$, the information ratio, which is the measure of how the portfolio exceeds the market's performance, is calculated by:

A) $\text{Mean}(\alpha_p(t)) / \text{stddev}(\alpha_p(t))$

Correct answer: A

Question 465: Suppose two fund managers M1 and M2 have residual return α_1 and α_2 , and $\text{mean}(\alpha_1) = \text{mean}(\alpha_2)$, $\text{stdev}(\alpha_1) > \text{stdev}(\alpha_2)$. If both managers have the same numbers of trades per year. Which manager do you think has better skills?

B) M2

Correct answer: B

Question 467: If we write two XYZ call options with strike price \$110, long one XYZ call option with strike price \$100, long one XYZ call option with strike price \$120, and the total premium for these positions is \$-233, then what would be the maximum P/L that we could get (options are traded in unit of 100 shares)?

B) 777

Correct answer: B

Question 469: Which of the following makes up a Markov Decision Problem?

B) set of states, set of actions, transition function and reward function

Correct answer: B

Question 462: What makes Dyna-Q suitable for financial trading applications?

B) Dyna-Q takes real & simulated experience in account

Correct answer: B

Question 464: Which of these statements is False about technical analysis?

C) Technical analysis considers the book value of a company

Correct answer: C

Question 466: Why did Charlie Geller and Jamie Shipley of Brownfield Capital get rejected by JP Morgan to acquire their ISDA?

B) Brownfield Capital didn't have enough money in their fund to be considered for an ISDA

Correct answer: B

Question 468: Which of the following statements is not true?

B) Diversification mutes systematic risk.

Correct answer: B

Question 470: The value of the Discounted Reward (Gamma) is 0.95. How do we value the future reward?

A) More

Correct answer: A

Question 471: Imagine you are considering investing in one of two different hedge funds, Black or Knight. If Black has twice the market skill that Knight has, but Knight has three times the breadth that Black has, what is the best choice according to the Fundamental Law?

- A) Choose Black because the higher breadth will likely result in a better performance

Correct answer: A

Question 473: What is the name of the option strategy below: Long 1 call with a strike price of $(X - a)$ Short 2 calls with a strike price of X Long 1 call with a strike price of $(X + a)$ where X = the spot price (i.e. current market price of underlying) and $a > 0$.

- B) Butterfly Spread

Correct answer: B

Question 475: Technical analysis uses:

- B) historical price and volume

Correct answer: B

Question 477: What type of strategies does the Strong Efficient Market Hypothesis prohibits?

- D) All of the above

Correct answer: D

Question 479: Which of the statements below is FALSE?

- D) A higher Sharpe ratio increases expected return

Correct answer: D

Question 472: Which of the following is not an input of the mean variance optimization (MVO)?

- D) Asset weights for portfolio that minimize risk

Correct answer: D

Question 474: The 3 forms of the efficient market hypothesis, in order from weak to strong, proclaim market efficiency with regard to which additional sources of information, respectively?

- A) historical price/volume data, public/fundamental information, insider information
B) insider information, public/fundamental information, historical price/volume data
C) public/fundamental information, insider information, historical price/volume data
D) public/fundamental information, historical price/volume data, insider information

Question 476: Which of the following date/price time series represent the most profitable scenario for the holder of a PUT option purchased on 01/01/18, with a strike price of \$10 and an expiry of 01/03/18?

- D) 01/01/18 / \$11, 01/02/18 / \$0, 01/03/18 / \$50, 01/04/18 / \$500

Correct answer: D

Question 478: Reinforcement learning algorithms fit a problem setting known as Markov decision process. In the Markov decision process, the outcome of applying any action to any state depends on what?

- A) only on this action and state

Correct answer: A

Question 480: In "The Big Short", what term or acronym is introduced to describe a fund comprised of several collateralized debt obligations?

- A) Synthetic CDO

Correct answer: A

Question 481: Tom purchased 100 calls of stock X on one day, where the due date of the option is 12.16.2018, the strike price is 120, and the last price of the option is 2.00. If on that day the price of X is 115 and on 12.16 the price first time arrives above 120, which is 125. How much profit can Tom gain by 12.16 in theory? (We do not take trading fee into consideration.)

B) 300

Correct answer: B

Question 483: The efficient markets hypothesis failed in 2008 due to the propagation misinformation about the risk and value of mortgages as collateral for CDO's. What macroeconomic metric increased high-risk mortgage lending prior to the 2008 financial crisis and therefore distorted the value of CDO's based on mortgages?

B) Interest Rate

Correct answer: B

Question 485: Consider how you would evaluate a asset for different time horizons. You may be trying to evaluate short horizons, such as price movements in the coming seconds, or long horizons, such as years or decades away, or any period in between. What time horizons are most suitable for technical analysis and fundamental analysis?

- A) Short horizons for technical analysis, short horizons for fundamental analysis.
- B) Short horizons for technical analysis, long horizons for fundamental analysis.
- C) Long horizons for technical analysis, short horizons for fundamental analysis.
- D) Long horizons for technical analysis, long horizons for

Question 487: Which version of the Efficient Market Hypothesis says that insider trading is the only way to make money?

B) Semi-Strong

Correct answer: B

Question 489: In Grinold's Fundamental Law of Active Portfolio Management, which of the following represents a perfectly correct predictor for the managers Information Coefficient or IC.

B) 1

Correct answer: B

Question 482: Can you create a portfolio that has lower risk than any individual component?

A) Yes. Co-variance between assets allows one to mitigate risk

Correct answer: A

Question 484: Which market was being shorted in "The Big Short"?

C) Housing

Correct answer: C

Question 486: You are an running a hedge fund. According to the Fundamental Law of Portfolio Management, which of the following have the greatest positive impact on your portfolio?

A) Doubling the correlation of predicted asset prices to actual asset prices.

Correct answer: A

Question 488: Why is Dyna preferred over basic Q-Learning?

B) Dyna-Q converges faster than Q-Learning

Correct answer: B

Question 490: What is the purpose of the random action rate (rar) and how does it relate to the concept of exploration vs exploitation?

C) Random action rate is the process of randomly exploring actions and as it decays it will lead to the exploitation of optimal actions.

Correct answer: C

Question 491: Which of the following problem would reinforcement learning be NOT suitable for?

[REDACTED]

D) Control a self-driving car

Correct answer: D

Question 493: Which one of these sources are incorrect in EMH information sources?

[REDACTED]

C) Public

Correct answer: C

Question 495: When comparing two portfolios that lie on the efficient frontier:

[REDACTED]

D) Each portfolio offers the lowest level of risk for an expected return

Correct answer: D

Question 497: If S = spot price, E = exercise price, then the value of a put option is

A) $\text{MAX}(0, E - S)$

Correct answer: A

Question 499: Regarding the Effective Market Hypothesis, which of the following is not true

[REDACTED]

B) In the weak form, future prices cannot be predicted

Correct answer: B

Question 492: Which of the following is NOT an input to the Mean Variance Optimization function?

[REDACTED]

C) Momentum

Correct answer: C

Question 494: which one of following is true regarding Dyna-Q and Q learning

- A) Because both Dyna-Q and Q-learning choose optimal policy using Q value table which is updated upon real world interaction, therefore both Dyna-Q and Q learning could be considered as model-free reinforcement learning
- B) the higher learning rate used in Dyna-Q and Q-learning, the slower convergency of the optimal policy
- C) both Dyna-Q and Q-learning require exploration to discover optimal policy, difference is that Dyna-Q use simulation on transaction and reward model to take random action, while Q-learning needs to do random action in the real world

Question 496: What is the strong form of EMH?

[REDACTED]

C) Prices adjust to public and private information

Correct answer: C

Question 498: How the randomness of actions should be set during the iterations of Q-learning Process?

[REDACTED]

B) Decrease during iteration with a proper start value

Correct answer: B

Question 500: If you predict the future stock price will move up and down in a small price range, which option strategy you will apply?

[REDACTED]

D) Butterfly

Correct answer: D

Question 501: In Q-Learning, we use MAX operator to find the optimal policy, what if we use MEAN operator instead of MAX in the Bellman Equation. Which one of the following do you think is correct?

- D) It will converge to some policy, not necessarily the same optimal policy as we obtain using MAX operator.

Correct answer: D

Question 503: Which one of the following statement is right regarding to CDO?

- B) A CDO can be backed by any debt collateral, including mortgages, bonds, private loans.

Correct answer: B

Question 505: Which of the following statement is TRUE in terms of CAPM beta?

- B) If beta of a stock is greater than 1, it implies the stock has higher volatility than the market.

Correct answer: B

Question 507: We see that a stock option with a \$50 strike price is priced at \$3.01, and the current market price for that stock is \$60. what is the actual price we pay for the option if we wish to buy it?

- D) \$301

Correct answer: D

Question 509: Peter, employee of Company A tells you before his company's earning's call that the company is going to give out a big dividend. In which form of Efficient Market Hypothesis below that you can benefit from this piece of information?

- A) Weak
B) Semi-Strong
D) Both A and B

Correct answer: D

Question 502: Front running a stock (high speed network) operates against (trying to beat) which Efficient Market Hypothesis (EMH)?

- C) Prices adjust quickly

Correct answer: C

Question 504: Statement:As per Grinold's fundamental Law Performance is directly proportional to breadth

- B) The Statement is always False

Correct answer: B

Question 506: What is the assumption behind technical analysis?

- A) Past market trends can predict the future behavior for the market as a whole and for individual stocks.

Correct answer: A

Question 508: An efficient market hypothesis states in which all public or private information is reflected in current market prices is classified as

- D) strong form efficiency

Correct answer: D

Question 510: What's the default rate that will make the CDO worthless?

- D) 8%

Correct answer: D

Question 511: What is an Experience Tuple in Reinforcement Learning?

- A) The state, action, altered state and reward from each step used to build policy

Correct answer: A

Question 513: Which has a greater impact on the risk adjusted return?

- A) Skill on predicting alpha

Correct answer: A

Question 515: In the following elements, which are relied in Q Learning

- A) Transition Matrix
B) Reward Function
C) Both
D) None of them

Correct answer: D

Question 517: If using Borllinger band as a technical indicator, when is the good time to buy the stock based on the value of the technical indicator?

- D) when the value changes from -1

Correct answer: D

Question 519: The Efficient Market Hypothesis (EMH) prohibits different kinds of analysis based on whether it is weak, semi-strong, or strong. Select the answer that matches the correct EMH to the analysis that it prohibits.

- B) Semi-strong : Technical Analysis, Fundamental Analysis

Correct answer: B

Question 512: According to the EMH, which of the statement is not correct?

- B) If markets are semi-strong form efficient, then passive portfolio management strategies are most likely to earn abnormal returns

Correct answer: B

Question 514: Based on the fundamental law, which of the followings can increase the information ratio from 1 to 2?

- B) Double the manager's information coefficient (IC).

Correct answer: B

Question 516: The range of a long call position's delta is

- A) [0,1]

Correct answer: A

Question 518: Considering the following code, what is the final output:
`import numpy as np a = np.arange(6) b = a b.shape = 3, 2 b = b.reshape(2,3) print a`

- B) `[[0, 1], [2, 3], [4, 5]]`

Correct answer: B

Question 520: Which of the following is not an EMH assumption?

- B) New information arrives daily

Correct answer: B

Question 521: Which one is good technical analysis indicator?

- ☐ momentum of a stock's price

Correct answer: C

Question 523: Which of the following are characteristics of technical analysis as it relates to stock trading?

- ☐ Price and volume

Correct answer: C

Question 525: Which best distinguishes reinforcement learning from supervised learning?

- ☐ Creating a rule-based policy that takes price as input and decides whether to buy, sell, or hold.
- ☐ Using positive net profit as a reward signal when trading profitably.
- ☐ Both B and C

Correct answer: D

Question 527: Which of the following statement is false regarding Efficient Markets Hypothesis (EMH)?

- ☐ Stocks can be never traded at their fair value

Correct answer: B

Question 529: Q-Learning is a model free approach and can be applied to domains where all states and / or transitions are not fully defined.

- ☐ True

Correct answer: A

Question 522: What are the inputs to the Mean Variance Optimization algorithm?

- ☐ Expected return, Standard Deviation, Correlation, Target return

Correct answer: D

Question 524: Which isn't a good indicator for technical analysis?

- ☐ interest rates

Correct answer: B

Question 526: Walmart announces that it is going to join hands with Google to beat Amazon in the space of Voice enabled Shopping. Which type of EMH allows any investor in Walmart (insider or outsider) to take advantage of this?

- ☐ Weak EMH only

Correct answer: A

Question 528: A lower learning rate enables the Q-Learning algorithm to learn more quickly by strongly preserving the previous value of $Q[s,a]$ over the improved estimate.

- ☐ False

Correct answer: B

Question 530: SEC regulations make it illegal to use "insider information" to earn profits. The SEC must believe that the market is:

- ☐ semi-strong form efficient, but not strong form efficient.

Correct answer: B

Question 531: In The Big Short, the banks bundled high risk mortgages together into CDOs and the ratings agencies gave these what rating?


B) AAA

Correct answer: B

Question 533: Which of the following statements is false?

- A) Q-Learning is only guaranteed to converge when supplemented by methods like Dyna due to the increased computation and further exploration.
- B) Q-Learning is model free and does not require knowledge about the rewards function or state transition matrix.
- C) Using Dyna can cause Q-Learning to take more computational time to converge if hallucinating is not significantly cheaper than interactions.
- D) Randomness in actions can be used to force an agent to explore the environment

Question 535: Using the efficient frontier, what would be the optimal portfolio for a funding looking for the lowest risk possible?


C) A mix of stocks and bonds

Correct answer: C

Question 537: What is NOT a technical analysis characteristic?

A) Earnings

Correct answer: A

Question 539: If we have to map trading problem to Reinforcement learning, Sharpe Ratio is what kind of a factor?


- A) It is a state we need to consider before we make a trade
- B) It is an action that we give to the market to cause a trade to occur
- D) Both A) and B)

Correct answer: D

Question 532: At the beginning of the crisis breakout, how can the value of mortgage subprime bonds not be affected by the demise of the housing mortgage subprime loans which are the very thing these bonds insure?

- A) They are independent markets and are not always correlated since those mortgage bonds especially modern ones made of layers of tranches and the derivatives such as CDOs are very complicated products.
- B) The mainstream investment banks are selling/unloading bonds to unsuspecting customers, and they will not de-value them until they get them off their books, which are in fact criminal activities.

Question 534: Which combination of information ratio and breadth produces the highest excess return?


D) IR = 5,000, B = 5,000

Correct answer: D

Question 536: What is NOT a technical analysis characteristic?

A) Earnings

Correct answer: A

Question 538: Assuming you are a broker and you predict that APPL stock will go sideways in the future. The current APPL stock price is \$201. You decide to use "butterfly" combination options to make profit from the market. You buy two calling options. One option's strike price is \$195 and the option's price is \$9. The other option's strike price is \$210 and the option's price is \$1. Meanwhile, you write two calling options whose strike price is \$200 and price of the written options is \$4. What are the maximum profit and maximum loss of these trading strategies?

- A) \$300, \$200.
- B) \$3, \$2.
- C) \$200, \$300.
- D) \$300, \$300.

Question 540: Consider a system with 2 states and 2 actions. You perform actions and observe rewards and transitions as: in S1, take a1, receive R=-10, and land in S1; in S1, take a2, receive R=-10, and land in S2; in S2, take a1, receive R=+20, and land in S1. Use Q-learning with learning rate 0.5 and discount factor 0.5 for each step, what is Q(S2, a1)? Assume all entries of the Q-table are initialized to zero.


B) 8.75

Correct answer: B

Question 541: - Consider two trading firms, trading firm A and trading firm B, that have comparable performance when trading. Which two factors does trading firm A need to have over trading firm B to have twice the performance? 1. Twice the breadth of trades and the same skill 2. The same breadth of trades and twice the skill 3. Twice the breadth of trades and twice the skill 4. Four times the breadth of trades and the same skill

B) II, IV

Correct answer: B

Question 543: According to Grinold's Fundamental Law, the information ratio is computed as a performance metric that measures:

C) a portfolio's returns that exceed market performance

Correct answer: C

Question 545: According to Portfolio Optimization, which of the following is an acceptable portfolio weighting to reduce risk given three stocks, ABC, PQR, XYZ, and the following facts: 1. ABC, PQR, XYZ each has a return of 12% 2. ABC and XYZ have a correlation of -0.9 3. PQR and XYZ have a correlation of 0.9 4. The expected portfolio return is 12%

D) ABC: 50%; PQR: 25%; XYZ: 25%

Correct answer: D

Question 547: Assuming a \$0 commission, at what price will the stock need to be exercised and sold at for the buyer of the call option of 100 shares to break even. The strike price is at \$123 and the option price is \$2.00 a share.

A) 125

Correct answer: A

Question 549: A collateralized debt obligation (CDO) are securities that may be composed of a diverse set of assets. Specifically, in The Big Short, CDOs that caused the financial crisis were composed of what asset?

C) low rated mortgage-backed securities

Correct answer: C

Question 542: Which of the following is true about Reinforcement Learning

C) With regard to trading, Daily Returns is a good example of a reward.

Correct answer: C

Question 544: How does the weak form of the Efficient Market Hypothesis (EMH) differ from the strong form of the EMH?

- A) In weak form, both historical and public information cannot predict future prices; in strong form, only private information can give a financial advantage.
- B) In weak form, only historical information cannot predict future prices; in strong form, no information (historical, public, or private) can give a financial advantage.
- C) In weak form, all information (historical, public, or private) can predict future prices; in strong form, only historical information can give a financial advantage.
- D) In weak form, no information (historical, public, or private) can

Question 546: Given the following information about identically performing portfolios: 1. Portfolio A performs no trades within the time frame 2. Portfolio B performs 2 trades within the time frame 3. Portfolio C performs 100 trades within the time frame Which portfolio manager has the greatest skill according to Grinold's Fundamental Law of Active Portfolio Management?

A) A

Correct answer: A

Question 548: Which of the following statements is CORRECT about model-free reinforcement learning approaches like Q-learning?

B) They DO NOT require all states and transitions to be fully defined.

Correct answer: B

Question 550: What market does Michael Burry create that allows him to bet against market-based mortgage backed securities?

C) Credit Default Swap Market

Correct answer: C

Question 551: Which of the following is FALSE about Reinforcement Learning (RL)?

B) Holding LONG or Holding SHORT are considered as "Actions".

Correct answer: B

Question 553: Consider two scenarios in coin flip casino experiment: 1) 1000 dollars on single bet. 2) 10 dollars each on 100 bets. Scenario 1 has _____ return, _____ standard deviation, _____ sharpe ratio when compared to Scenario 2

B) equal, higher, lower

Correct answer: B

Question 555: In what scenario can Reinforcement learning NOT be applied?

D) learning to fly an airplane

Correct answer: D

Question 557: Which of the following is not a form of the Efficient Market Hypothesis?

B) Semi-Weak

Correct answer: B

Question 559: Which form of the Efficient Markets Hypothesis implies that some form of fundamental analysis will be able to reliably produce excess returns?

A) Weak

Correct answer: A

Question 552: An investor's summary measure of skill is measured by:

B) $\text{MEAN}(\alpha) / \text{STDEV}(\alpha)$

Correct answer: B

Question 554: What is the term for the correlation between a fund manager's forecasted return and the fund's actual return?

B) Information Coefficient

Correct answer: B

Question 556: Given the Efficient Frontier of a portfolio, how can you find the allocation for the maximum Sharpe Ratio portfolio?

C) Draw a tangent line from the origin to the efficient frontier

Correct answer: C

Question 558: Investor A and Investor B have the same level of skill with regards to investing in the market. According to Grinold's Fundamental Law, what is the best way for Investor A to improve his/her performance over that of Investor B?

C) Increase the total number of positions in their portfolio

Correct answer: C

Question 560: The key instrument of the short selling in The Big Short was collateralized debt obligations. Burry realized that the housing market was overvalued because CDOs were rated _____ despite being comprised of _____.

B) Triple-A, lowest rated tiers of mortgage-backed securities

Correct answer: B

Question 561: _____ is that risk undertaken by exposure to any asset in the asset class.

- ☐ A) Unsystematic risk
- ☒ B) Systematic risk

Correct answer: B

Question 563: Which of the following statements violate the semi-strong form of the efficient market hypothesis?

- ☐ A) A CEO of a company buys a large number of stocks of the company just before an earnings call of that company and ends up with a large profit.
- ☐ B) Jane carefully chooses a portfolio of stocks and holds the portfolio for a year. John buys S&P500 ETF and holds it for a year. At year end, Jane makes more profit than John.
- ☐ C) A trading firm figures out that the daily returns of a stock multiplied by the relative strength index of that stock gives an indication of price movement of that stock with high probability.
- ☐ D) A hedge fund manager talks to a company called

Question 565: How should you trade a stock when its moving average reaches the upper bollinger band?

- ☒ A) Sell

Correct answer: A

Question 567: Which of the assumptions are true for Efficient Market Hypothesis (EMH)? I. There are large number of investors, and new information arrives randomly. II. Investors usually react quickly to new information. III. Accounting information accurately portray a company's economic situation. IV. Events occur randomly to affect the market.

- ☐ A) I, II, III only
- ☒ D) I, III, IV only

Correct answer: D

Question 569: Is there a limit on the number of iterations over Q learning training data where performance stops improving?

- ☐ A) No, there is no convergence point at which performance will no longer improve
- ☒ B) Yes, there is a convergence point at which performance will no longer improve

Correct answer: B

Question 562: What ratio is the basis for refuting the semi-strong EMH?

- ☐ A) Price / Earnings Ratio
- ☐ B) Price / Book Value Ratio
- ☐ C) Price / Dividend Ratio
- ☒ D) (Price / Earnings) Ratio

Correct answer: D

Question 564: Which of these is the difference between model-based and model-free reinforcement learning algorithms?

- ☐ A) Model-based RL algorithms try and estimate the dynamics model T.
- ☒ C) Model-based RL algorithms try and estimate the dynamics model T.

Correct answer: C

Question 566: Reinforcement algorithms solve which of the following problem

- ☐ A) Markov Decision Problem
- ☒ B) Markov Decision Problem

Correct answer: B

Question 568: Type I and Type II differences 1. Type 1 - False Positive 2. Type 2 - False Negative 3. Type 1 - False Negative 4. Type 2 - False Positive

- ☒ A) 1 & 2 are correct

Correct answer: A

Question 570: Which of the following is NOT true about MBS's (mortgage backed securities)?

- ☐ A) The MBS is traded OTC (over the counter) as insurance against non-payment of debt.
- ☒ B) The MBS is traded OTC (over the counter) as insurance against non-payment of debt.

Correct answer: B

Question 571: Which of these 3, are essential components a reinforcement learning algorithm requires to function?

C) Reward function, agent, action

Correct answer: C

Question 573: The main cause of 2007 housing crash was that banks were selling ____ CDO's consisting of ____ subprime loans

A) large, unstable

Correct answer: A

Question 575: If we combine several technical indicators to construct a stronger predictive model, _____.

C) this model should generate better trading signals than a model of only one technical indicator

Correct answer: C

Question 577: What is the formula for Information Ratio in terms of α (alpha) and/or β (beta)?

D) $\text{mean}(\alpha(t)) / \text{stdev}(\alpha(t))$

Correct answer: D

Question 579: What is the goal of portfolio optimization?

B) to design the combination of assets that produces the lowest risk for a specified target return

Correct answer: B

Question 572: If you were given a chart with the price of a stock and then asked to add Bollinger Bands, the correct response would be to:

- A) plot lines two standard deviations above and below the simple moving average
- B) plot the simple moving average for the last 3 days, and the simple moving average for the last 30 days
- C) plot lines two standard deviations above and below the stock's momentum
- D) plot a horizontal line two standard deviations above the average price for the duration displayed in the chart, and another line two standard deviations below

Question 574: According to the fundamental law of active portfolio management, which of the following generates a higher Sharpe ratio:

B) Higher alpha

Correct answer: B

Question 576: Considering two different stocks A and B. Stock A has a Beta of 1.0 while Stock B has a Beta of 10.0. Both Stocks A and B return an Alpha of 1%. Based on purely technical analysis, are the two equally attractive? Is one Stock more attractive than the other?

A) A is more attractive.

Correct answer: A

Question 578: What are decision variables in an portfolio optimization problem?

D) portion of portfolio devoted to each asset



Correct answer: D

Question 580: While running a trading company, you are considering changing your operations to improve the Information Ratio (IR) for your trades. Which operations change below is the best option to optimize IR?

A) Make 1/16th as many trades, but trade 5 times as skillfully.

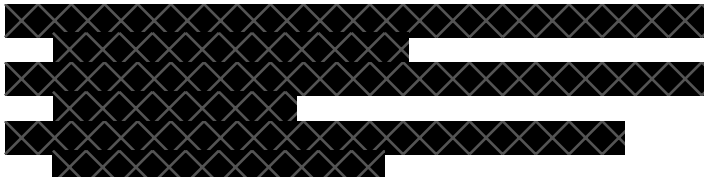
Correct answer: A

Question 581: Generally, a portfolio consisting of 2 stocks will have the lowest volatility if the covariance between the 2 stocks is:

- 
C) Negative




Correct answer: C

Question 583: Which of the following statement is true about reinforcement learning.

- 
D) Both A and B

Correct answer: D

Question 585: Which of the following terms is NOT a concept of Markov decision process:

- 
C) behavior


Correct answer: C

Question 587: Grinold's Fundamental Law of active portfolio management attempts to draw a metric for a fund manager's performance based on the skill of the fund manager and number of trading opportunities. According to the fundamental law, which of the following terms is best used to describe the performance metric of a fund manager?

- 
B) Information Ratio


Correct answer: B

Question 589: Reinforcement learning methods are closely related to what other type of programming?

- 
C) Thermodynamic Programming


Correct answer: C

Question 582: If the semi-strong form of the efficient market hypothesis holds true, which of the following scenarios are not already reflected in the current stock price of XYZ Corporation?

- 
C) Susan reviewed internal lab analysis of XYZ Corporation's steel, and realized that three months of products are defective.


Correct answer: C

Question 584: Choose the correct option from below, that is sorted correctly from most public information to least public information.

- 
B) Price/volume, Fundamental, Exogenous, Company insiders



Correct answer: B

Question 586: Which of the following did NOT happen in the movie "The Big Short"?

- 
C) Mark Baum was convinced to invest into CDOs after his pleasant meeting with the CDO manager.



Correct answer: C

Question 588: Which has the greatest effect on the information ratio?

- A) Doubling information coefficient

C) Halving information coefficient
D) A and C

Correct answer: D

Question 590: Which one of the following is not correct regarding a write call option?

- 
C) You will break even if the spot price at expiration is the strike price.


Correct answer: C

Question 591: If a trader increases his number of trades from 100 to 400, how much will his Information Ratio increase by?

B) 2 times

Correct answer: B

Question 593: List out 1-2 outcome of married put ?

A) if stock goes up, we lose the possible profit from premium

Correct answer: A

Question 595: Here is a history of the 2 most recent interactions between the environment and an agent. Suppose that prior to seeing any history, the agent had arbitrarily assumed a baseline probability of 1/2 for transitioning to state $S' = 3$ from state $S = 5$, and a probability of 1/2 for transitioning to state $S' = 7$ from state $S = 4$. What would be the updated (correct) probability for transitioning to state $S' = 7$ from state $S = 4$ after this new information shown below is taken into account? Assume a discount factor of 1. ... Environment: Agent is in state 5. There are 2 possible actions. Agent: Takes action 2 Environment: Agent received a reinforcement of +20 units. Agent is now in state 4. There is 1 possible action. Agent: Takes action 1 Environment: Agent received a reinforcement of +100 units. Agent is now in state 7.

Question 597: Technical Analysis looks at which factors

A) Historical Price and volume

Correct answer: A

Question 599: Please select the statement that is NOT TRUE about the Efficient Markets Hypothesis.

B) Semi-Strong EMH states that prices reflect all information public and private

Correct answer: B

Question 592: Which of the following is NOT true about the Efficient Market Hypothesis?

A) If the weak form is correct, technical analysis and fundamental analysis cannot successfully predict future prices.

Correct answer: A

Question 594: Which one is NOT an information gain approach to determine the best feature in building decision tree?

B) Sharpe Ratio

Correct answer: B

Question 596: Which of the following statements is "False" if the Strong version of the Efficient Market Hypothesis is true:

C) Investors can hold a portfolio of stocks that performs better than the market portfolio.

Correct answer: C

Question 598: Assume Buffet's algorithm is 3 times as smart as Simon's algorithm, and Simon trades 4 times as frequently as Buffet does. Which of the following sentences is correct based on the Fundamental Law?

D) Buffet's information ratio is 1.5 times of Simon's

Correct answer: D

Question 600: In *The Big Short*, when Dr. Michael Burry (Christian Bale) realizes the mortgage bond market is fraudulent, what action does he take?

A) He restricts his investors' ability to withdraw their funds

Correct answer: A

Question 601: The following is the price for a stock 08-07 142.00
08-08 142.00 08-09 141.00 08-10 140.00 08-11
140.50 08-12 140.50 08-13 141.00 08-14 143.00 08-15
145.00 08-16 141.00 Please calculate the SMA of the stock at 08-
12 with a look back window of 4

B) 140.05

Correct answer: B

Question 603: Which of these is a reason that supports the Strong form of the Efficient Market Hypothesis?

A) Money managers cannot consistently outperform

Correct answer: A

Question 605: You and Dr. Balch are both stock traders. He has 100 times higher information ratio than you and makes 10,000 times as many trades as you. Which one of you has higher skill (information coefficient) when it comes to trading stocks?

C) Both of your skills are equal.

Correct answer: C

Question 607: Which of the following is not true about Q-learning?

B) Either a state or a transition function needs to be fully defined

Correct answer: B

Question 609: Does the semi-strong EHM hypothesis states that the market portfolio is optimal?

A) Yes - As the price adjust quickly to all publicly available information

Correct answer: A

Question 602: Using the semi-strong version of the Efficient Market Hypothesis, which of the following forms of analysis can be successful?

- A) Fundamental Analysis
- B) Technical Analysis
- C) A and B
- D) None of the above.

Correct answer: D

Question 604: Which of the following should not be considered as part of the state description when mapping trading decisions to a reinforcement learning problem?

D) Return from Trade

Correct answer: D

Question 606: If weak form of the Efficient Market Hypothesis is true, which of the below person may profit from arbitrage?

B) An investor with fundamental estimates of intrinsic value

Correct answer: B

Question 608: The tactic that Michael Burry used to freeze his investors' money in his fund?

A) Side-Pocketing

Correct answer: A

Question 610: Which of the following is false about Information Ratio (IR)

A) It evaluates risk-adjusted rate of return on investment portfolios


Correct answer: A

Question 611: Fundamental analysis only considers historical price, volume, while technical analysis considers other factors like earnings, dividends, cash flow, and book value.


B) False


Correct answer: B

Question 613: What is the primary advantage of using the Dyna architecture?


C) Simulating experiences is less expensive than interacting with the real world.

Correct answer: C

Question 615: In the context of Reinforcement learning as applied to trading, what part of the formal Markov Decision Problem corresponds to the Market.


D) The market represents the transition function $T[s, a, s']$

Correct answer: D

Question 617: Assume Simon and Buffet are two hedge fund managers. Simon's Information Performance is twice better than Buffet. Based on Grinold's Fundamental Law, Choose the only statement that is TRUE below:


C) Simon may have better skill but traded less than Buffet


Correct answer: C

Question 619: Which item could NOT be description of a possible state when mapping trading to the reinforcement learning model?


C) Selling

Correct answer: C

Question 612: Dr. Michael Burry demonstrated that the mortgage-backed securities market is not efficient. Which form of the EMH did he invalidate by using fundamental analysis to beat the banks?


B) The semi-strong form
C) The strong form
D) B and C

Correct answer: D

Question 614: What is the the definition of the Information Ratio for the portfolio, which return is presented as following : $r(t) = \text{beta} * r_m(t) + \alpha(t)$, where $r_m(t)$ is a market return. For simplicity assume that the daily return of the portfolio is $\text{daily_ret}(t)$.

A) $IR = \text{mean}(\alpha(t)) / \text{std}(\alpha(t))$

Correct answer: A

Question 616: Given a tech stock and a gold ETF, I would expect the covariance between these to be:


B) negative


Correct answer: B

Question 618: For the transition function, T defined as $T[s, a, s']$ in a Markov decision problem, which of the following is not true?


C) s is the state we will end up in if we take action a on state s'

Correct answer: C

Question 620: In **The Big Short**, how did Dr. Michael Burry (Christian Bale) handle the fact that no financial instruments existed to short mortgage bonds?


C) He convinced banks to make the instruments, then sell them to him

Correct answer: C

Question 621: Grinold's Fundamental Law states:



D) $\text{Performance} = \text{Skill} \times \sqrt{\text{Breadth}}$

Correct answer: D

Question 623: Information Ratio is proportional to ____ breadth



B) square root



Correct answer: B

Question 625: Reinforcement learning addresses the question of how an autonomous agent that senses and acts in its environment can learn to choose optimal actions to achieve its goals.

A) True



Correct answer: A

Question 627: What form of the efficient market hypothesis states that it is impossible for a fundamental analysis to choose stocks that will beat the market's returns?



B) semi-strong



Correct answer: B

Question 629: Which of the following is not a reinforcement algorithm?

A) Neural Network



Correct answer: A

Question 622: A software developer working for a hedge fund is tasked with creating a tool to predict future stock prices using only historical P/E ratio data. According to the semi-strong form of the Efficient Markets Hypothesis, this tool has a good chance of successfully predicting future stock prices.



B) False

Correct answer: B

Question 624: Which one of the following is NOT an action, when we view trading as an RL problem?



C) Holding long



Correct answer: C

Question 626: 90% of all of Berkshire Hathaway's stocks are in how many stocks?



C) 12



Correct answer: C

Question 628: In the movie The Big Short what happens at the end as a reaction to the financial meltdown?



D) Only one person, Kareem Serageldin from Credit Suisse was sent to jail.

Correct answer: D

Question 630: Co-variance of stock ST2 w.r.t stock ST1 = 0.95 Co-variance of stock ST3 w.r.t stock ST1 = -0.95 Co-variance of stock ST4 w.r.t stock ST1 = -0.5 Portfolio of two volatile stocks having equal weight, resulting in lowest volatility without hampering returns would be



B) ST1 and ST3



Correct answer: B

Question 631: Given two trade strategies with the same expected return (reward), trade strategy A involves a single trade with a Sharpe Ratio of 0.15, while trade strategy B involves 144 trades over a one-year period. What is the Sharpe Ratio of trade strategy B?

B) 1.8

Correct answer: B

Question 633: In one scene, Ryan Gosling pulls blocks from a Jenga tower. What concept he's trying to explain?

C) The top-rated securities at the top end of the tower cannot stand when the lower-rated securities fail and are removed from its base.

Correct answer: C

Question 635: Assume the strong form of the Efficient Market Hypothesis is true. If information that a drug company's much-hyped future product has failed clinical trials is publicly announced, what will happen to the stock price of the company?

D) The price will stay the same as the price already reflected that information

Correct answer: D

Question 637: Two fund managers, Gordon Gekko and Jordan Belfort want to manage your retirement portfolio. Belfort boasts that he has a system that will give him a little information about every stock in the Russell 3000 to get an impressive return over the market. Gekko, on the other hand, claims he only looks at the Dow Jones Industrial Average, with 30 stocks, to match Belfort. How much more skill, i.e. information coefficient does Gekko have compared to Belfort?

- A) 1000 times
- B) Same
- C) 9 times
- D) 10 times

Question 639: Which of the following statements about Bollinger Bands(R) is FALSE?

B) The width of the bands does not depend on the stock's volatility

Correct answer: B

Question 632: In Jared Bennett's (Ryan Gosling) pitch of the Credit Default Swap to Mark Baum (Steve Carell) and the Front Point partners in *The Big Short*, what did the falling Jenga tower represent?

B) The collapse of America's entire housing market

Correct answer: B

Question 634: Assuming that the Information Coefficient is inversely related to Breadth. Then select the choice which will have the maximum Information Ratio:

A) Information Coefficient = 4 * Breadth

Correct answer: A

Question 636: How is the short in The Big Short different from how we have applied shorting in the class?

B) The short did not involve borrowing and selling an actual security

Correct answer: B

Question 638: Which of the following is NOT one of the assumptions of the Efficient Market Hypothesis (EMF)?

C) Small number of investors operating in the market for profit

Correct answer: C

Question 640: According to Grinold & Kahn's "Fundamental Law of Active Management", If the fund manager tries to improve the performance of the fund, what is the better choice that he/she can take?

A) find more alphas of stocks and diversify the portfolio to increase the trading opportunities.

Correct answer: A

Question 641: In 2007, Warren Buffett famously made a one million dollar bet against a hedge fund company that an S&P 500 index fund would outperform a collection of their actively managed hedge funds over the following decade. He won this bet in 2017 and in doing so, showed how difficult it can be for even the most experienced investors to outperform markets. What idea does the result of this bet seem to led credence to?

B) Efficient Markets Hypothesis (EMH)

Correct answer: B

Question 643: The Fundamental Law consists of the following:

- A) Performance
- B) Skill
- C) Breadth
- D) All of the above

Correct answer: D

Question 645: Currently, Bob and Jane have equivalent performance when trading stocks. Jane improves her performance by increasing skill 2-fold, and increasing the breadth of her trading 9-fold. Bob wants to match Jane by also increasing his performance to equal Jane's new performance. However, he wants to only focus on increasing his breadth, not skill. By what factor does Bob need to increase the breadth of his trading in order to match Jane's new performance?

- A) 6
- B) 12
- C) 36
- D) 72

Question 647: Which technical factors does the weak version of EMH prohibit?

A) Technical

Correct answer: A

Question 649: Aaron is a skilled trader; he makes 100 trades a year and gets a return of 20%. Bob is relatively new to trading and only has about 1/20 the skill Aaron has. According to the Fundamental Law, how many trades will Bob have to make to also achieve a return of 20%?

B) 40000

Correct answer: B

Question 642: What is the meaning of the discounted reward in the context of reinforcement learning?

A) The believed value of a future reward but in present time.

Correct answer: A

Question 644: According to the Fundamental Law, which of the following is NOT true:

B) Two equally skilled hedge funds can obtain the same performance with different breadths

Correct answer: B

Question 646: Consider a robot moving across a grid trying to optimize its total discounted reward where each tile in the grid is worth a reward of 8. If $\lambda=0.5$, what is the total discounted reward for a path where the robot moves in a straight line across 4 squares?

B) 15

Correct answer: B

Question 648: According to Grinold's simplified Fundamental Law of Active Portfolio Management, a nine times increase in breadth (number of trades) should result in what change in performance?

A) A three times increase

Correct answer: A

Question 650: You recently got a stock tip from your uncle about a hot new stock, HOT. However, because of bad tips that your uncle has given you in the past, you decide to invest in options instead of the basic stock. Assume that the stock price of HOT is currently \$100 and that these contracts have no expiration date. Which of the following contracts should you purchase so that you will net exactly \$100 if you exercise the option when HOT is exactly \$110?

- A) CALL contract with a premium of \$1.00 and a strike price of \$109
- B) CALL contract with a premium of \$1.00 and a strike price of \$108
- C) PUT contract with a premium of \$1.00 and a strike price of \$110
- D) PUT contract with a premium of \$1.00 and a strike price of \$109

Question 651: Which criterion is used to evaluate risk for a given stock?


B) standard deviation of historical daily returns


Correct answer: B

Question 653: Weak version of Efficient Market Hypothesis says that trading based on insider-information can't beat the market/produce excess returns.


B) False

Correct answer: B

Question 655: Which of the following acts as an "insurance policy" to insure the buyer against mortgage defaults?


C) Credit default swap (CDS)


Correct answer: C

Question 657: When solving Markov Decision Problems (MDP) with reinforcement learning, all of the following are key components except:


B) A reward function: $R[s,a,s']$


Correct answer: B

Question 659: Which of the following is not a form of the Efficient Market Hypothesis?

A) Semi-Weak




Correct answer: A

Question 652: Which answer LEAST conforms to the EMH assumptions?


B) A stock that is traded by very few investors


Correct answer: B

Question 654: Consider company XYZ and investor A Which of the following would be considered 'skill' by the The Fundamental Law in regards to the investor investing in this company?


C) Investor A predicts XYZ will have an above average return on the year based off an analysis of its products and the corresponding market for these products




Correct answer: C

Question 656: Selling 1000 shares of JPM on 01/04/2008 is an example of what element in reinforcement learning.


C) An action



Correct answer: C

Question 658: In the movie The Big Short, why did not the rating agencies downgrade the subprime bonds since the underlying loans are defaulting?



D) They want the banks' money

Correct answer: D

Question 660: Optimal portfolios that comprise the efficient frontier offers

A) The highest expected return for a defined level of risk
B) The lowest risk for a given level of expected return.
C) A and B


Correct answer: C

Question 661: The Big Short described this technique as something used by banks that would allow them to "bet" on the outcome of another "bet". This caused somewhat of a loop as more and more "bets" were placed on each subsequent "bet" created. What was the term used to describe this phenomena?

[REDACTED]

C) Synthetic collateralized debt obligations (CDO-Squared)

[REDACTED]

Correct answer: C

Question 663: Optimal portfolios that comprise the efficient frontier offers:

- A) The highest expected return for a defined level of risk.
- B) The lowest risk for a given level of expected return.
- C) A and B

[REDACTED]

Correct answer: C

Question 665: Harry Markowitz introduced which of the following:

- A) Combining assets that are anti-correlated can result in a much lower risk portfolio.

[REDACTED]

Correct answer: A

Question 667: What is the capital requirements for an ISDA to do high stakes trade?

- A) 14,070,000,000

[REDACTED]

Correct answer: A

Question 669: Which of the following statements is true?

- A) Optimal portfolio always includes all stocks with a very high positive correlation.
- B) A good strategy while building a portfolio is to look for anti correlation in long term and positive correlation in short term between the individual stocks in the portfolio.
- C) To plot the efficient frontier for a portfolio, the ray (line segment from the origin to a specific point on the frontier) with the steepest slope represents the maximum Sharpe ratio.
- D) The optimized risky portfolio can be found in the efficient frontier by getting the point of the maximum return point on the efficient frontier.

Question 662: According to Grinold & Kahn's "Fundamental Law of active portfolio management", If the fund manager tries to improve the performance of the fund, what is the better choice that he/she can take?

- A) find more alphas of stocks and diversify the portfolio to increase the trading opportunities.

[REDACTED]

Correct answer: A

Question 664: If you were to draw a tangent line from the origin to the efficient frontier, what would you expect to find at the intersection?

[REDACTED]

- C) The portfolio with the highest Sharpe ratio for all the assets

[REDACTED]

Correct answer: C

Question 666: Suppose you have a trading reinforcement learning (RL) agent. Which of the following can be set as either a state or a reward for the RL process?

[REDACTED]

- B) Daily Return

[REDACTED]

Correct answer: B

Question 668: With regards to the Fundamental Law, what is summarized in the Information Coefficient?

[REDACTED]

- C) Skill

[REDACTED]

Correct answer: C

Question 670: With Efficient Markets Hypothesis (EMH), which form says that doing fundamental analysis is acceptable?

- A) Weak form

[REDACTED]

Correct answer: A

Question 671: What are the forms of information available that lay the foundation for the Efficient Market Hypothesis?

- A) Past Prices
- B) Public Information
- C) All Information including inside information
- D) All of the above

Correct answer: D

Question 673: Your friend appears to be twice as skilled at picking stocks than you are, but he can only afford to invest in 1/15th of the stocks you have. However, being unemployed, he has the time to trade three times per day while you only have time to trade once per day. Who's the better performing investor, if any?

- B) You

Correct answer: B

Question 675: According to Grinold's Fundamental Law, if an investor wants to increase their performance, an increase of which measure impacts their performance the most?

- B) Skill

Correct answer: B

Question 677: Suppose stocks A, B have the same cumulative return but negatively correlated daily returns, and our current portfolio has been allocated among these stocks to minimize risk. Compared to stock A, the portfolio will have

- B) same return, lower or same risk

Correct answer: B

Question 679: Which of the following are true for Fundamental Law of Active Management: A: Information Ratio is risk adjusted reward B: Transaction cost is accounted in Fundamental Law C: Trading opportunities must be independent D: Information Coefficient is constant and can be easily calculated

- A) A and C

Correct answer: A

Question 672: The information ratio IR is summarized by:

- C) Performance

Correct answer: C

Question 674: Assume that you somehow have the same IC than Buffet. Buffet is known for having only 120 trading opportunities per year but you want to double Buffet's IR. How many trading opportunities do you need in order to achieve your goal?

- A) 480

Correct answer: A

Question 676: What is NOT a reason to prefer trading options rather than stocks?

- A) Trading options requires you to predict the stock in one direction in a timely manner.

Correct answer: A

Question 678: Which of the following are true for Fundamental Law of Active Management: A: Information Ratio is risk adjusted reward B: Transaction cost is accounted in Fundamental Law C: Trading opportunities must be independent D: Information Coefficient is constant and can be easily calculated

- A) A and C

Correct answer: A

Question 680: Why were Collateralized Debt Obligation (or CDOs) offered by investment banks ticking time bombs, as per The Big Short?

- C) Investment banks started creating CDOs that included just the lowest rated tiers of mortgage-backed securities

Correct answer: C

Question 681: Why was the number of mortgage-backed bonds increasing prior to the financial crisis?

- A) Investors wanted to buy mortgage-backed bonds because they had higher interest rates than other bonds

Correct answer: A

Question 683: How many shares of the underlying stock does an option contract control?

- B) 100

Correct answer: B

Question 685: How did Hedge fund manager Michael Burry predict in 2005 that US housing market will collapse by 2007?

- A) He found large number of high risk subprime borrowers are missing their payments that will cause mortgage market to collapse.
- B) He found an increasing pattern in number of foreclosures in US housing market.
- C) He knew that housing market bubble will burst in a couple of years.
- D) He found that a very larger number of mortgages were subprime and a huge percentage of those subprime mortgages was ARM (Adjustable rate mortgage).

Question 687: Which of the following comes closest to how Salina Gomez explains what a synthetic CDO is, in the movie "The Big Short".

- A) As a bet, on a bet, on a bet...but on the same underlying security

Correct answer: A

Question 689: Which of the following statements is True?

- A) In Q Learning, the learning rate (alpha) used to what progressively reduce the value of feature rewards.
- B) In Q Learning, the discount factor (gamma) used to vary the weight given to new experiences compared with past Q-values.
- C) High values of learning rate means the future rewards were valued more.
- D) None of the above.

Correct answer: D

Question 682: Which one doesn't make reinforcement learning different from other machine learning paradigms?

- A) No labels in dataset

Correct answer: A

Question 684: Which of the following is not a disadvantage of buying options?

- A) It is possible that you might lose more money than the premium that you paid for the option.

Correct answer: A

Question 686: How did Hedge fund manager Michael Burry predict in 2005 that Mortgage backed securities will collapse by 2007?

- A) He found large number of high risk subprime borrowers are missing their payments that will cause mortgage market to collapse.
- B) He found an increasing pattern in number of foreclosures in mortgage market.
- C) He was a smart man and had a hunch.
- D) He found that a very larger number of mortgages were subprime and a huge percentage of those subprime mortgages was ARM (Adjustable rate mortgage).

Question 688: Which statement is FALSE given the formula for Q for any state-action pair, given an experience tuple ?

- B) $r = R[s, a]$ is the delayed reward for taking action a in state s.

Correct answer: B

Question 690: Which one of the following is NOT a technical indicator?

- D) Dividend yield

Correct answer: D

Question 691: Which of the following is not one of the Moving Average indicators?

C) Trend Moving Average (TMA)

Correct answer: C

Question 693: Which of the following statements is false?

D) The Information Coefficient is the Information Ratio times the square root of breadth

Correct answer: D

Question 695: In the Black-Sholes Formula, what does $N(d_2)$ mean?

B) probability of $S > K$

Correct answer: B

Question 697: If we think price of the stock will go down dramatically, which one of the following 4 actions is generally the best?

B) Long a Put

Correct answer: B

Question 699: What is the proper definition for "subprime loan"?

D) A loan that is provided to subprime individuals or those with poor credit ratings (ability to repay)

Correct answer: D

Question 692: Is it possible to construct a portfolio with a higher return and a lower risk than its underlying assets, using the Efficient Frontier?

A) No, the portfolio's return is upper bound by the highest return of any individual asset it holds.

Correct answer: A

Question 694: In The Big Short, Dr. Burry created the Credit Default Swap (CDS). What is a proper analogy for this product if you were Dr. Burry?

B) You are paying insurance for Uncle Sam's car, and you claim the money in the case of a crash.

Correct answer: B

Question 696: If an investor sells 100 shares of XYZ short at 100 and simultaneously writes one XYZ 100 put at 3. what is the maximum gain in this strategy?

D) \$3/share

Correct answer: D

Question 698: The fundamental law is $IR = IC * \sqrt{\text{breadth}}$. Which of the following statements is correct regarding the fundamental law?

B) Only Breadth can be improved easily

Correct answer: B

Question 700: What is the goal of portfolio optimization?

A) To design a combination of assets that produces the lowest risk for a specified target return.

Correct answer: A

Question 701: If the weak form of the Efficient Market Hypothesis is correct, which of the following is true?

B) Technical Analysis Cannot Work

Correct answer: B

Question 703: Consider the following 2 investments strategies. 1. Warren Buffet, carefully analyzes fundamental of various stocks. And picks the stocks that are undervalued and has higher chances of beating the market in the long term. With this strategy, he is consistently able to beat the market. 2. An HFT (High-frequency trading) firm, using high-speed fibre cable is able to look at the order book of NYSE few milliseconds in advance of the other traders. By utilizing this arbitrage, the firm is able to trade accordingly and consistently generate the profits while beating the market. Which of the option from the following is true?

A) Strategy 1 violates the semi-strong version of EMH and Strategy 2 violates the Strong version of EMH

Question 705: The _____ form of the efficient market hypothesis implies that there is little or nothing to be gained from technical analysis and fundamental data.

C) semi-strong

Correct answer: C

Question 707: You are in the "Coin-Flip Casino", where you can bet on biased coin flips with a 51% chance of winning and 49% chance of losing. Which of the following is an advantage of betting \$1 on 1000 coins versus betting \$1000 on 1 coin?

D) Decreased risk

Correct answer: D

Question 709: For Q-learning to converge we need to correctly manage the exploration vs exploitation tradeoff. Which of the following is the correct approach for the exploration strategy?

A) Every action needs to be tried sufficiently often in every state.

Correct answer: A

Question 702: What makes an "Efficient Frontier" efficient?

D) It contains the portfolios with the lowest possible risk given a particular amount of return.

Correct answer: D

Question 704: Which of the following is not an EMH assumption:

D) The number of investors does not matter

Correct answer: D

Question 706: Which choice is not changed in the reinforcement learning process?

D) Policy

Correct answer: D

Question 708: For a Markov Decision Problem (MDP), it is assumed that the Agent knows the following in advance:

A) Set of States S and Set of Actions A
B) Transition Function $T[s,a,s']$
C) Reward Function $R[s,a]$
D) All of the above

Correct answer: D

Question 710: What are the correct forms of the Efficient Markets Hypothesis?

A) "Weak", when the prices are not the deterministic function of the past

Correct answer: A

Question 711: To double information ratio in The Fundamental Law of Investment Management, one needs to:

- A) double skill metric
- B) double information coefficient
- C) increase number of independent forecasts by the factor of $\sqrt{2}$
- D) all of the above

Correct answer: D

Question 713: Which set of data is a good candidate for reinforcement learning to outperform other types of machine learning?

- D) Character movement data from 1000000 games of Pac-man.

Correct answer: D

Question 715: For the Strong form of the Efficient Market Hypothesis, which is true?

- D) Future prices can not efficiently be predicted using technical analysis, fundamental analysis, or insider information.

Correct answer: D

Question 717: If you were to buy a stock using bollinger bands as an indicator, when would be a good time to buy the stock?

- A) When the stock is 2 standard deviations below the normal price

Correct answer: A

Question 719: All of the following could be considered "state" in a reinforcement learning system:

- A) Daily returns, Bollinger value, simple moving average, selling short

Correct answer: A

Question 712: Which of the following may be used for technical analysis?

- B) A company's stock price

Correct answer: B

Question 714: What game did Jared Vennett (Ryan Gosling's character) use when he first pitched credit default swaps to Mark Baum (Steve Carell character) and his team?

- A) Jenga

Correct answer: A

Question 716: Reinforcement Learning Discount Factor

- B) is used to account for uncertainties about future rewards

Correct answer: B

Question 718: Which form of the efficient market hypothesis claims that only information that is not readily available to the public can help investors increase their returns above that of the general market?

- B) Semi-strong Form

Correct answer: B

Question 720: If you believe that the strong form of the Efficient Market Hypothesis is true, which investing strategy would you be most likely to choose?

- A) Consider fundamental factors such P/E ratio, assets, and liabilities, and trade stocks based on how you think they will do in the future.
- B) Analyze technical factors such as historical price and volume using machine learning and trade stocks based on your model's predictions of future prices.
- C) Buy and hold a passively-managed index fund that mirrors the performance of the overall market, such as SPY.
- D) Obtain private information known only to company executives

Question 721: Which of the following forms of the Efficient Markets Hypothesis claim that even insider trading will not yield excessive returns?


C) Strong


Correct answer: C

Question 723: You are in discussion with a friend who has used Machine Learning to build several trading models. He explains that he can prove that the markets are strong form efficient (according to the Efficient Market Hypothesis) because he is able to use price data to generate positive alpha. You agree / disagree with this statement because:

- A) Agree because the strong form EMH does not consider the use of Machine Learning Techniques which are proven to generate Alpha
- B) Disagree because in the strong form EMH it is impossible to generate positive alpha regardless of the method used
- C) Agree because in the strong form EMH you can use price data to generate positive alpha and Machine learning uses only price data to discover Patterns

Question 725: Increasing the information coefficient is proportional to increasing the information ratio, whereas increasing the breadth affects the information ratio only as a square root. Which law is this an example of?


D) Fundamental Law

Correct answer: D

Question 727: What is the equation for momentum?

- A) $\text{momentum}[t] = \text{price}[t] / \text{price}[t - n] - 1$

Correct answer: A

Question 729: Which pair represents two assumptions that EMH (Efficient Market Hypothesis) makes.

- A) Current Price reflects all available information, Information arrives randomly



Correct answer: A

Question 722: Which of the following is not considered in the Fundamental Law?


B) Rewards




Correct answer: B

Question 724: Which of the following is correct about Bollinger bands


B) More volatile stocks need bands farther away from the mean




Correct answer: B

Question 726: How is a simple moving average calculated?


B) Recent closing prices are added and then divided by the number of time periods in the calculation average.


Correct answer: B

Question 728: Please select all true statements regarding reinforcement learning.


C) is an area of machine learning concerned with how agents ought to take actions in an environment so as to maximize cumulative reward.


Correct answer: C

Question 730: What is an ISDA Agreement ?

A) It represents an agreement that lets an investor sit at the big boy table and make high-level trades not available to stupid amateurs.


Correct answer: A

Question 731: Which of the following is not considered a technical indicator?

- 
- B) P/E Ratio
- 


Correct answer: B

Question 733: Which is not a correct assumption of Efficient Market Hypothesis (EMH)?

- 
- C) Prices adjust slowly
- 


Correct answer: C

Question 735: What is the formula for Grinold's Fundamental Law?

- A) $\text{Performance} = \text{Skill} * \sqrt{\text{Breadth}}$
- 



Correct answer: A

Question 737: Simple moving average can be calculated over multiple window sizes. If SMA with a window size of 20 crosses higher than the SMA with a window size of 50, what conclusion can you draw about the current stock price?

- A) It is trending upwards
- 

Correct answer: A

Question 739: The S&P 500 is up more than 200% since March 2009. If you had bought shares of the companies that were members of the S&P 500 in March 2009 in proportion to their representation in the index in March 2009, What would be your return since March 2009 till today ?

- 
- C) Cannot say because of Survivorship bias
- 

Correct answer: C

Question 732: A credit default swap is most similar to

- A) An insurance policy
- 

Correct answer: A

Question 734: According to the Fundamental Law, could it be likely for an inexperienced frequency trader to yield similar returns compared to a trader such as Warren Buffet?

- A) Yes, because as the volume of trades increases, the reward opportunity increases by a power of 2.
- B) Yes, because the sheer number of transactions could offset a lack of skill.
- C) No, because Warren Buffet is the World's most prolific frequency trader.
- D) No, because the more transactions that occur, the more likely it is to suffer losses.

Question 736: Which of the following scenarios might be an indication that it is a good time to buy a certain stock?

- 
- C) Stock Price is at the bottom Bollinger Band and momentum is positive.
- 

Correct answer: C

Question 738: You are a hedge fund manager, and you want to improve your performance. Your best friend, a former ML4T student, says that you should consider the The Fundamental Law of active portfolio management when making your decision. What possible things can you do to improve your fund's performance?

- A) Decrease the breadth of your portfolio, and invest in a few, safe stocks.
- B) Invest in the same amount of stocks, but pick high-risk high-return stocks.
- C) Increase the breadth of your portfolio, and invest in a wider variety of stocks.
- D) Decrease the breadth of your portfolio, and pick high-risk high-

Question 740: A very efficient market with no insider information would benefit an investor most who:

- 
- C) Uses "weak form" of EMH and utilizes industrial knowledge of product segments to identify companies with undervalued intrinsic value
- 

Correct answer: C

Question 741: Which option would provide the most effective form of technical analysis in a trading strategy:

B) A combination of Bollinger Bands and Momentum with a window of 10 days

Correct answer: B

Question 743: A company's current stock price is 50 dollar per share. Current long-term corporate bond yield is 5%. The dividend yield has been 10% for 10 years. An executive just sold her shares for 49 dollars per share. Suppose the market is strong-form efficient, what would be the dividend this year?

C) 4.9

Correct answer: C

Question 745: Consider the following statements: Stock prices adjust immediately to new public information, so investors can use neither fundamental nor technical analysis to make profits on the market. However, insider information may help investors. Which of the following best describes these statements?

B) Semi-weak form of Efficient Market Hypothesis

Correct answer: B

Question 747: What form of the efficient markets hypothesis implies that book value is not available to predict market performance?

C) Strong

Correct answer: C

Question 749: What would be the best reason to use ema (exponential moving average) compared to sma (simple moving average)?

C) Weight: ema prioritize recent price in its average

Correct answer: C

Question 742: When comparing a stock's price to Bollinger Bands, when the price of a stock goes above the upper band, then comes back down, this is a technical indicator to do what?

C) Sell the stock

Correct answer: C

Question 744: Weak EMH prohibits which of the following indicators?

A) Technical

Correct answer: A

Question 746: What form of the efficient markets hypothesis implies that book value is not available to predict market performance?

C) Strong

Correct answer: C

Question 748: What technical indicator is used to compute Bollinger Bands?

B) Simple moving average (SMA)

Correct answer: B

Question 750: Which one of the following versions of the efficient market hypothesis states that even insider knowledge cannot give any trade advantage?

C) Strong

Correct answer: C

Question 751: Which of the following is true about Information Ratio?

- A) Information Ratio is a measure of manager performance over time.
- B) Information Ratio is ratio of excess returns to standard deviation of excess returns.
- C) Information Ratio is ratio of excess returns to standard deviation of returns.
- D) Both A and B

Correct answer: D

Question 753: Simple Moving Average and Standard Deviation of a stock's price are technical indicators of what, respectively:

- A) Momentum, and Volatility
- B) Momentum, and Standard Deviation
- C) Volatility, and Standard Deviation
- D) Volatility, and Momentum

Correct answer: B

Question 755: Weak form market efficiency

- A) involves price and volume information
- B) involves price information
- C) involves price and volume information
- D) involves volume information

Correct answer: C

Question 757: Which of the following statements does NOT support Semi-Strong Form EMH?

- A) Exogenous information can be used to predict stock prices.
- B) Exogenous information can be used to predict stock prices.
- C) Exogenous information can be used to predict stock prices.
- D) Exogenous information can be used to predict stock prices.

Correct answer: C

Question 759: Below is a list containing the daily prices of a stock over ten days. Assuming that we denote the first day as day 0, at which of the days below is the momentum at it's maximum? Consider 3 days when calculating momentum. [8.0, 10.0, 9.5, 10.0, 10.0, 8.0, 7.0, 7.5, 8.0, 10.0]

- A) 0
- B) 1
- C) 2
- D) 9

Correct answer: D

Question 752: When you enter Tucker Balch's Coin Toss Casino, what is the better strategy? Bet a dollar at 1000 booths or bet 1000 at one single booth?

- A) Betting a dollar at 1000 booths because you lower risk
- B) Betting a dollar at 1000 booths because you lower risk
- C) Betting 1000 at one single booth because you lower risk
- D) Betting 1000 at one single booth because you lower risk

Correct answer: B

Question 754: Which statement is False?

- A) Reinforcement learning can be understood using the concepts of agents, environments, states, actions and rewards
- B) Reinforcement learning solves the difficult problem of correlating immediate actions with the delayed returns they produce.
- C) Reinforcement learning assumes knowledge of an exact mathematical model of the MDP unlike classical dynamic programming methods.
- D) Reinforcement learning in systems with unknown environment where the agent must trade off efficiently between exploration(long-term optimization) and exploitation (short-term optimization)

Question 756: Consider the following the following environment: { [+2] [+0] [-1] [START] [-1] [-1] [+1] [+3] } where a player beginning at "START" can move one position (left or right) per unit time and receive the award or penalty at that position. What is the maximum reward that can be achieved under the following conditions: - finite time horizon of 3 - finite time horizon of 4 - an infinite time horizon

- A) +1, +2, infinite
- B) +1, +2, infinite
- C) +1, +2, infinite
- D) +1, +2, infinite

Correct answer: B

Question 758: Which of the following will increase the performance the most

- A) Increase the information coefficient by 4 times
- B) Increase the information coefficient by 4 times
- C) Increase the information coefficient by 4 times
- D) Increase the information coefficient by 4 times

Correct answer: A

Question 760: What do you call an option which has no intrinsic value and will be worthless if expired?

- A) Out-of-the-money option
- B) Out-of-the-money option
- C) Out-of-the-money option
- D) Out-of-the-money option

Correct answer: C

Question 761: What is a covered call strategy?

C) buy a stock & write a call

Correct answer: C

Question 763: Which of the following is not a key assumption of the Efficient Markets Hypothesis?

B) New information arrives linearly.

Correct answer: B

Question 765: What is true about the mortgage in the mortgage-backed security (MBS)?

A) The mortgages are sold to a group of individuals that packages, the loans together into a security that investors can buy.

Correct answer: A

Question 767: In "The Big Short", which of the following is NOT discussed as contributing to the housing market collapse?

A) Landlords raising rent for their tenants

Correct answer: A

Question 769: If I have an option contract for 200 shares of AAPL with a strike price of \$200 and the current price of AAPL is \$180, what should I do?

C) Wait and see if the price of AAPL goes up before your contract runs out to decide what to do

Correct answer: C

Question 762: Which of the following is not true of the weak form of the efficient market hypothesis?

C) Essentially impossible to make money by holding a portfolio other than the market portfolio

Correct answer: C

Question 764: If you buy an option contract (Call Option) at \$100 per share and pay a premium of \$2.00 per share, at the expiration day, the stock price is \$90, how much have you gain?

C) -\$200

Correct answer: C

Question 766: Reinforcement learning is suitable for what scenario below?

C) Optimizing inventory space in warehouse

Correct answer: C

Question 768: The Fundamental Law: Suppose there are two information sources. The IC for each source is 0.01 and the correlation between two sources is 1. what is the skill level of the combined sources?

B) 0.01

Correct answer: B

Question 770: Based on the Fundamental Law, an equal increase in performance and in investment skill signifies that:

B) The number of trading opportunities stays constant.

Correct answer: B

Question 771: What is the Fundamental Law of Active Management by Grinold and Kahn?

- A) $\text{Information Ratio} = \text{Information Coefficient} * \sqrt{\text{Number of trading opportunities per year}}$

Correct answer: A

Question 773: Suppose two portfolios have the same average return, the same standard deviation of return but portfolio A has a higher beta than portfolio B. According to the Sharpe ratio, portfolio A's performance is:

- C) same as B

Correct answer: C

Question 775: Which of the following statement is incorrect?

- B) The fundamental law is designed to give us insight into passive management.

Correct answer: B

Question 777: RR labs' stock price on Sept 10, 2018, was \$200. On Sept 11, 2018, RR Labs announced that they invented a drug that could cure stage 3 cancer. On Sept 12, 2018, the stock price of RR labs was \$200. What do you infer about the informational efficiency of the markets?

- A) Weak form

Correct answer: A

Question 779: To triple the information ratio of our hedge fund we can ...

- D) Increase our Breadth by 9 times

Correct answer: D

Question 772: You're considering several portfolio allocations, including: portfolio A, which yields a 25% return with a Sharpe ratio of 2.0, B which yields a 50% return with a SR of 1.0, C which yields a 25% return with a SR of 1.0 and D which yields a 10% return with a SR of 2.0. You plot the potential portfolios' risk and return and the resulting efficient frontier. Where would portfolio C lie?

- C) Below/to the right of the efficient frontier

Correct answer: C

Question 774: A hedge fund engaging in technical analysis do think that

- D) EMH is incorrect regardless of which form

Correct answer: D

Question 776: Which of the following is true when comparing reinforcement learning and linear regression?

- A) Reinforcement learning tells us when to sell our stock, while linear regression does not

Correct answer: A

Question 778: What is reinforcement learning?

- A) System is given no data and learns based on outcomes from interactions with its environment

Correct answer: A

Question 780: Based on Mean Variance Optimization, you should look for stocks with:

- A) anti-correlation in short terms and positive-correlation in long terms

Correct answer: A

Question 781: Which of the following is NOT an assumption of the Efficient Markets Hypothesis?

A) Small number of investors operating in the market for profit

Correct answer: A

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