Participation Exam Questions
CS 7646 - ML4T1

Question 1: Why did it become a good investment to bet against mortgage-backed securities.
A) The default rate on the mortgages kept rising.
B) Rating agencies were accurately assigning ratings.
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 ___.
A) low breadth
B) low sharpe ratio
C) high breadth
D) high volatility
Correct answer: C

Question 3: Is Bollinger Bands a leading indicator?
A) Yes
B) No, Bollinger Bands is a lagging indicator
C) No, Bollinger Bands is not an indicator
D) No, Bollinger bands is neither a leading or a lagging indicator
Correct answer: B

Question 8: Which statement is true regarding the Fundamental Law of Portfolio Management?
A) IR = IC * sqrt(BR)
B) IC = IR * sqrt(BR)
C) BR = IC * IR
D) IR = IC + sqrt(BR)
Correct answer: A

Question 10: What does CDS stand for?
A) Collateralized Debt Swap
B) Credit Default Swap
C) Collateralized Debt Security
D) Credit Default Security
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
B) Insured the bonds against failure and the insurer paid the claim if the underlying bonds make money

C) To increase employees
D) As an annual practice
Correct answer: A

Question 15: Which celebrity chef and "Kitchen Confidential" author explains collateralized debt obligations (CDOs) by comparing them to fish stew?
A) Gordon Ramsay
B) Mario Batali
C) Thomas Keller
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 ___< λ <=___.
A) [reduced , -1, 1]
B) [reduced, 0 , 1]
C) [discounted, -1, 1]
D) [discounted, 0 , 1]
Correct answer: D

Question 21: What is the meaning of "synthetic CDO" in "the big short" movie?
A) A CDO that contains subprime mortgages
B) A CDO that contains student loan
C) A CDO that contains credit default swaps
D) A CDO that contains corporate debt
Correct answer: C

Question 24: Which of the following statements about Dyna is true?
A) Dyna is a model-free based method.
B) Dyna is the basis for Q-Learning.
C) Dyna is a blend of model-free and model-based methods
D) Dyna is more expensive than Q-Learning
Correct answer: C

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
B) 20000
C) 2000000

D) 2000
Correct answer: A

Question 45: The discount factor allows us to value:
A) Helps to achieve maximum returns over long term
B) long-term reward more than short term reward
C) short-term reward more than long-term ones
D) None of the above
Correct answer: C

Question 46: Which of the following hypotheses hold under Efficient
Market Hypothesis?
A) EMH implies that it is impossible to predict perfectly future
returns
B) EMH implies that prices must incorporate all existing information
C) EMH implies that prices vary with no clear reason
D) EMH implies that prices do not fluctuate
Correct answer: B

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
B) zero, positive
C) positive, positive
D) zero, zero
Correct answer: A

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
B) zero, positive
C) positive, positive
D) zero, zero
Correct answer: A

Question 54: Which statements is FALSE about "The Big Short"?
A) A Collateralized debt obligation (CDO) can be made up of different
types of assets and loans.
B) Many Mortgage-Backed Securities (MBS) are also Collateralized
debt obligations (CDOs).
C) AAA tranches have higher risks than BBB tranches.
D) Michael Burry made profits by purchasing Credit default swaps

(CDS) from the banks and these banks paid him the full amount of
the bond when the Mortgage-Backed Securities (MBS) defaulted.
Correct answer: C

Question 59: Which of the following methods is NOT a valid way of solving
a reinforcement learning problem?
A) Transition Iteration
B) Value Iteration
C) Q-Learning
D) Policy Iteration
Correct answer: A

Question 61: Which of the following are not assumptions of the Efficient
Markets Hypothesis?
A) New Information arrives randomly
B) Small number of investors
C) Prices adjust quickly
D) Prices reflect all available information
Correct answer: B

Question 64: Reinforcement learning algorithm tries to (select one that
applies)
A) Find a policy pi that minimizes Transition function.
B) Find a policy pi that minimizes Reward function.
C) Find a policy pi that maximizes Transition function.
D) Find a policy pi that maximizes Reward function.
Correct answer: D
Question 65: Which of the following choices is not an assumption made
by the Efficient Market Hypothesis?
A) There are a large number of investors
B) Prices adjust quickly
C) Prices reflect all available information
D) The market can be beaten by efficient trading practices
Correct answer: D

Question 68: According to EMH, what type of analysis/analyses could
provide excess returns for the semi-strong form?
A) Technical Analysis
B) Fundamental Analysis
C) A and B
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.
A) value
B) leverage
C) riskiness
D) stability
Correct answer: B

Question 74: Identify the FALSE statement about the components that make up a Markov Decision Problem.
A) States - a finite set of states that the process can occupy at a current time
B) Actions - a finite set of actions that can be enacted given a state
C) Observations - events observed that are by-products of the current state of the process
D) Rewards - the motivation given for transitioning from the current state to the next state
Correct answer: C

Question 75: Please select statements that are True:
A) In Markov decision tree process the reward from applying action to the current state depends on the previous states and previous actions that were taken by the agent
B) The end goal of the Markov decision problem is to find a policy that maximizes total rewards
C) Agent can only receive one type of a reward at a time: either an immediate reward or a discounted future reward
D) Transition function maps sets of actions into sets of rewards
Correct answer: B

Question 76: Which of these metrics are not used in the Bollinger Band calculation introduced in lecture?
A) Standard Deviation
B) Momentum
C) Simple Moving Average
D) Price
Correct answer: B

Question 79: What problem would be most effectively addressed by reinforcement learning?
A) Forecasting the weather by analyzing instantaneous measurements
B) Scoring wine based on graded taste features
C) Using sensors to navigate an environment

D) Recognizing a song after sampling a small portion of it
Correct answer: C

Question 80: Which version of the Efficient Market Hypothesis suggests that insider trading cannot be possible?
A) Strong
B) Semi-strong
C) Weak
D) All of the above
Correct answer: A

Question 87: What is NOT correct regarding the Q-learning update rule?
A) Alpha is learning rate, indicating the dependence of the new Qvalue on the old one.
B) We need to find the action that maximize the Q-value among all possible actions when calculating new Q-value.
C) Discount and immediate reward of both past and future actions should be considered when calculating new Q-value.
D) The discount factor is used to reduce the value of future rewards.
Correct answer: C

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
C) High portfolio performance can only be guaranteed through diversification
D) Both (A) and (B)
Correct answer: D

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.
B) Prices of AAPL will adjust rapidly to any new information about the company.
C) Prices of AAPL reflect all knowledge about the company, public and private.
D) Future prices for AAPL can be predicted accurately by analyzing historic prices.
Correct answer: A

Question 99: Increase in SMA(Simple Moving Average) over a period of time indicates:
A) Increase in volatility of the stock for the time period
B) Decrease in Stock price for the time period
C) Increase in the Stock price for the time period
D) No Change in stock price
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) Price adjust quickly.
C) New information arrives randomly and transparently.
D) Neither technical nor fundamental analysis can produce riskadjusted excess returns under efficient market assumptions.
Correct answer: A

Question 115: What are the two components of taking action a in state s for Q[s, a]?
A) maximum reward, minimum reward
B) immediate reward, discounted reward
C) long reward, short reward
D) call reward, put reward
Correct answer: B

Question 116: What is the most important factor to make a less volatile portfolio for the combinations of several stocks?
A) Average price of stocks
B) Covariance of stocks
C) Average daily return of stocks
D) Standard deviation of daily return of stocks
Correct answer: B

Question 125: Which of the following schema is model free?
A) Policy Iteration
B) Value Iteration
C) Q Learning
D) Decision Tree
Correct answer: C

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Question 127: Which of the statement of Q-learning below is False?
A) The agents job is to maximize cumulative reward.
B) Q-learning does not require a model of the environment and can
handle problems with stochastic transitions and rewards.
C) Agents actions affect the subsequent data it receives.
D) The learning rate determines the importance of future rewards.
Correct answer: D

Question 128: Which one of the statements below is correct considering
moving average?
A) A moving average helps remove daily fluctuation from analysis.
B) The shorter the time period under consideration, the easier it is to
predict long-term trends.
C) The longer the time period under consideration, the more
sensitive the moving average is towards daily volatility.
D) A moving average is always computed using the same arithmetic
model.
Correct answer: A

Question 129: In Q-Learning an experience tuple is denoted by . What do
the variables s, a, s' and r stand for?
A) s = initial state, a = action, s' = new state, r = risk
B) s = initial state, a = action, s' = new state, r = reward
C) s = new state, a = action, s' = initial state, r = reward
D) s = initial state, a = alpha value, s' = new state, r = risk
Correct answer: B

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?
A) The previous value of Q is preserved less; The learning process is
less quickly; The later rewards are valued more
B) The previous value of Q is preserved more; The learning process is
less quickly; The immediate rewards are valued less
C) The previous value of Q is preserved less; The learning process is
more quickly; The later rewards are valued more
D) The previous value of Q is preserved less; The learning process is
more quickly; The later rewards are valued less
Correct answer: C

Question 135: For a portfolio consisting of two stocks, what kind of correlation between the stocks minimizes the volatility or risk of the portfolio?
A) Positive correlation (i.e. near +1 correlation)
B) Correlation does not affect portfolio risk, only covariance.
C) No correlation (i.e. near 0 correlation)
D) Negative correlation (i.e. near -1 correlation)
Correct answer: D

Question 136: Which is NOT the assumption of efficient markets hypothesis?
A) Price does not reflect all available information
B) Large number of investors in the market
C) New information is constantly arriving
D) Price adjust quickly
Correct answer: A

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?
A) The optimal policy
B) The current estimate of the policy
C) The optimal value of the state
D) The current estimate of value at that state
Correct answer: B

Question 143: Which of the following is not an Efficient Market Hypothesis assumption?
A) There are a large number of investors interacting in the market for profit.
B) New information arrives randomly.
C) Current price reflects all available information.
D) Single stocks often outperform the market.
Correct answer: D

Question 146: The equation for Grinold's Fundamental Law of Active Portfolio Management is:
A) Information Ratio (IR) = Information Coefficient (IC) * sqrt(Breadth)
B) Information Ratio (IR) = Information Coefficient (IC) * Breadth
C) Information Coefficient (IC) = Information Ratio (IR) * sqrt(Breadth)

D) Information Coefficient (IC) = Information Ratio (IR) * Breadth
Correct answer: A

Question 148: What portfolios lie on the efficient frontier?
A) The portfolios with the highest Sharpe ratio
B) The lowest risk portfolios for each level of return
C) The highest return portfolios for each level of Sharpe ratio
D) The portfolios with the lower risk
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?
A) Buy
B) Sell
C) Return from trade
D) Bollinger Value
Correct answer: D

Question 151: Which of the following is true about the Efficient Market
Hypothesis?
A) There are a small number of investors
B) New information arrives randomly
C) Prices adjust slowly
D) prices don't reflect all available information
Correct answer: B

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?
A) Ensure the co-variance between the two stocks is positive
B) Ensure that the standard deviation of the stock prices is minimal
C) Ensure that the co-variance between the two stocks is negative
D) Use the air speed of an unladen swallow to determine portfolio
percentage.
Correct answer: C

Question 153: If a call option is far 'out of the money' the value of the
option will be:
A) Equal to the value of a put option with the same exercise price
B) Greater than the value of a put option with the same exercise
price
C) Less than the value of a put option with the same exercise price
D) None of the above is correct

Correct answer: C

Question 158: What does breadth refer to in the Fundamental law of active portfolio management ?
A) Breadth of investor's expertise
B) Investor's Skill level
C) Number of trades / Opportunities that the investor has access to
D) A and C
Correct answer: C

Question 159: In which trading horizon is fundamental analysis more valuable than technical analysis?
A) Days
B) Milliseconds
C) Years
D) All of the above
Correct answer: C

Question 160: An option that can be exercised profitably for the holder is said to be ____; otherwise, it is _____.
A) out of the money; in the money
B) in the money; out of the money
C) a tax liability; speculative bet
D) covered call; naked call
Correct answer: B

Question 161: Which of these is NOT input to Mean-Variance Optimization?
A) Expected Return
B) Volatility
C) Covariance
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
B) performance is measured as information ratio
C) breadth is related to number of trades
D) performance = skill * sqrt(breadth)
Correct answer: A

Question 164: Which of the following is true about weak form of EMH:
A) There is no type of information that can give an investor an advantage on the market.
B) Ones cannot predict future stock prices on the basis of past stock prices.
C) Ones cannot predict future stock prices on the basis of all information, future product launches, R&D Developments.
D) Both A and B.
Correct answer: B

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.
B) Loss because things are usually not what they seem.
C) Zero return because the next price of stock is expected to be the same as the last price.
D) Very high return because the new information will not affect the stock price until later.
Correct answer: A

Question 168: What are the 'layers' of a mortgage bond called (i.e. AAA, BBB, etc.)?
A) Levels
B) Tranches
C) Properties
D) Pools
Correct answer: B

Question 172: How many shares are typically included in an options contract?
A) 10
B) 50
C) 100
D) 1000
Correct answer: C

Question 173: What is a symptom of "mania" as described in the movie The Big Short?
A) Negative public sentiment
B) A rapid rise in complexity and rates of fraud
C) Bullish market sentiment
D) Sudden downward spikes in security prices

Correct answer: B

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?
A) It will likely become more "staggered" looking, with many more highs and lows
B) It will likely become "smoother" looking, with fewer highs and lows.
C) It will become indistinguishable from the price line.
D) It depends on the stock, there is not enough information to tell.
Correct answer: B

Question 175: What is the equation for Grinold's Fundamental Law?
A) performance = skill * sqrt(breadth)
B) performance = breadth * sqrt(skill)
C) breadth = skill * sqrt(performance)
D) performance = skill * breadth^2
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)
B) (1) (3) (2) (4)
C) (3) (1) (2) (4)
D) (2) (1) (4) (3)
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
B) semi strong form efficiency
C) strong form efficiency
D) market efficiency
Correct answer: A

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?
A) Strong form
B) Strong and Semi-strong forms
C) Semi-strong and Weak forms
D) Semi-strong form
Correct answer: C

Question 191: Which factor of the Fundamental Law is easiest to improve?
A) Performance
B) Skill
C) Breadth
D) Information Coefficient
Correct answer: C

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.
B) A low value of alpha means that new Q value is more strongly preserved.
C) A low value of gamma means that we value later rewards very significantly
D) None of the above
Correct answer: A

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
B) Alice is 16 times more skillful than Bob
C) Bob is 4 times more skillful than Alice
D) Alice and Bob have the same skill level
Correct answer: A

Question 209: Which of the following is NOT assumed by the efficient market hypothesis?
A) There is a large number of investors participating in the market.
B) New information arrives predictably.
C) A stocks price quickly adjust to any new information.
D) A stocks current price reflects all information about that stock.
Correct answer: B

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
B) Alice is 16 times more skillful than Bob
C) Alice and Bob have the same skill level
D) Bob is 4 times more skillful than Alice
Correct answer: A

Question 212: Information Ratio according to Grinolds Fundamental Law is
A) IR = IC x sqrt(Breadth)
B) IR = sqrt(IC x Breadth)
C) IR = IC x Breadth
D) IR = sqrt(IC) x Breadth
Correct answer: A

Question 227: Select the FALSE statement about technical analysis below:
A) As compared to fundamental analysis, technical analysis works better on smaller time scales
B) An example using technical analysis may take into account stock price, volume, and book value
C) Technical analysis strategies are highly utilized in Hedge Funds
D) Sharpe ratio, price momentum, and Bollinger Band position would all be considered indicators in technical analysis
Correct answer: B

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
B) $5
C) $1000

D) $995
Correct answer: A

Question 232: Which of the following is NOT a component that defines a Markov Decision Problem.
A) Set of Actions A
B) Probabilistic Function P
C) Transition Function T
D) Set of States S
Correct answer: B

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%
B) ABC 25%, LMN 25%, XYX 50%
C) ABC 33%, LMN 33%, XYZ 33%
D) ABC 10%, LMN 10%, XYZ 80%
Correct answer: A

Question 238: If the efficient markets hypothesis is true, then stock prices _____ and returns are _____.
A) fluctuate randomly, evenly distributed
B) fluctuate randomly, normally distributed
C) do not fluctuate, evenly distributed
D) do not fluctuate, normally distributed
Correct answer: B

Question 243: Which of the following analyses would become unsuccessful if the form of EMH switch from semi-strong to strong?
A) Technical
B) Fundamental
C) Insider
D) None of the above
Correct answer: C

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
B) Our policy, , takes in a state 'S' and outputs an action 'a'
C) Action 'a' is taken in the environment and the environment then transitions to a new state
D) Reward 'r' for taking a certain action helps the learner arrive at

the optimal policy
Correct answer: A

Question 247: Which of the following is an example of a model-free
approach to reinforcement learning?
A) Value iteration
B) Policy iteration
C) Q-learning
D) Linear regression
Correct answer: C

Question 249: Which of following statement is not true about the efficient
frontier?
A) The efficient frontier represents the optimal portfolio with lowest
risk given the target return
B) There is no possible portfolio that can never exceed the efficient
frontier (have better performance)
C) The risk may be higher even though the target return is reduced.
D) Each tangent line of efficient frontier represents the maximum
sharp ratio given the target return
Correct answer: D

Question 254: Which one of these is not a value used to evaluate a
portfolio?
A) Cumulative Return
B) Volatility
C) Adjusted Closing Price
D) Sharpe Ratio
Correct answer: C

Question 258: Which of the following statement about Q-Learning is true?
A) Q-Learning uses models of rewards, state and actions.
B) Q-Learning is guaranteed to converge towards the optimal
solutions.
C) Q-Learning is a model free approach.
D) Q-Learning can only be applied to domains where all states and
transitions are fully defined.
Correct answer: C

Question 261: What serves as feedback from the environment in a RL problem?
A) action
B) reward
C) state
D) policy
Correct answer: B

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?
A) It will increase by 4 times
B) It will increase by 2 times
C) It will decrease by 4 times
D) It will decrease by 2 times

Question 269: Which option below is not a right description of the different form of EMH?
A) Weak EMH means future prices CANNOT be predicted by historical (no technical)
B) Semi-Strong EMH means prices adjust slowly (no fundamental and technical)
C) Semi-Strong EMH means prices adjust rapidly (no fundamental and technical)
D) Strong EMH means prices reflect all info (public and private) (no insider, technical, or fundamental)
Correct answer: B

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. "
A) Semi-strong form
B) Weak form
C) Strong form
D) None of the above
Correct answer: B

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.
A) IR of investor A > IR of investor B
B) IR of investor A < IR of investor B
C) IR of investor A = IR of investor B
D) Not enough information
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
A) 7.6
B) 6
C) 6.4
D) 9
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?
A) High-grade
B) AAA
C) AA+
D) Investment-grade
Correct answer: B

Question 288: What form of the EMH says future prices cannot be predicted by analyzing historical prices?
A) Weak
B) Semi-strong
C) Strong
D) None of the above
Correct answer: A

Question 289: Which of the following option operations has an unlimited potential loss?
A) BUY CALL
B) BUY PUT
C) WRITE CALL
D) WRITE PUT
Correct answer: C

Question 297: Which of these investment factors was Richard Grinold
NOT trying to relate to one another with the Fundamental Law?
A) Breadth
B) Skill
C) SPY Prices
D) Performance
Correct answer: C

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
B) the set of portfolios that would guarantee a no-loss bet on the
market
C) how a portfolio comprising a 60/40 mix of equities and bonds
would perform at various risk-free rate of return assumptions
D) the set of portfolios that satisfy a rational investor's preference
for a safe and risk-adverse investment
Correct answer: A

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
B) the set of portfolios that would guarantee a no-loss bet on the
market
C) how a portfolio comprising a 60/40 mix of equities and bonds
would perform at various risk-free rate of return assumptions
D) the set of portfolios that satisfy a rational investor's preference
for a safe and risk-adverse investment
Correct answer: A

Question 305: Which equation is correct according to Grinold's
Fundamental Law?
A) Information Ratio = Sharpe Ratio
B) Information Ratio = Information Coefficient * sqrt(Breadth)
C) Information Ratio = Information Coefficient * sqr(Breadth)
D) Information Ratio = Information Coefficient * Breadth
Correct answer: B
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:
A) Collateralized debt obligations (CDOs)

B) Mortgage-backed securities (MBS)
C) Credit-default swaps
D) Hedge Fund
Correct answer: B

Question 309: The point at which the tangent line from origin hits the efficient frontier gives us _____
A) Max Cumulative Return
B) Max Sharpe Ratio
C) Max Average Daily return
D) Risk free return
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)
A) Bollinger Ratio
B) Sharpe Ratio
C) Standard Deviation
D) Information Coefficient
Correct answer: B

Question 313: Which of the following is NOT one of the assumptions EMH makes?
A) Prices adjust quickly to new information
B) Prices reflect all available information
C) New information arrives in a predictable way
D) There is a large number of investors
Correct answer: C

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 319: Which of the following can be an optional element of a Reinforcement Learning System?
A) Agent
B) Environment
C) Reward Signal
D) Model
Correct answer: D

Question 323: If the weak form of the Efficient Market Hypothesis is true, which of the following is right?
A) Market history of a stock can be used to predict the stock's future price
B) It prohibits technical and fundamental analysis
C) The weak version is more likely to apply to the largest, most transparent and liquid markets
D) Insider trading will work for the weak form
Correct answer: D

Question 324: In Reinforcement Learning, which of the following parameter can either be a STATE or a REWARD?
A) Bollinger Value
B) Return from Trade
C) Daily Returns
D) Holding Long
Correct answer: C

Question 331: The fundamental law is represented as -
A) IR = IC*SQRT(BR)
B) IR = IC*BR
C) IR = IC*BR^2
D) IR = IC*BR*SQRT(120)
Correct answer: A

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
D) None of the above
Correct answer: C

Question 334: What is the main advantage of a model-free approach like Q-Learning?
A) Q-Learning does not require look-ahead or careful weighting
B) Q-Learning can easily be applied to domains where all states and/or transitions are not fully defined
C) Q-Learning implementations are generally faster than modelbases approaches
D) Q-Learning is the best way to avoid overfitting
Correct answer: B

Question 335: The fundamental law is represented as -
A) IR = IC * SQRT(BR)
B) IR = IC*BR
C) IR = IC*BR^2
D) IR = IC*BR*SQRT(120)
Correct answer: A

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?
A) Cumulative return
B) Momentum
C) Alpha
D) Beta - or something else like Sortino Ratio
Correct answer: D

Question 341: What is one major difference between US style stock options and European style stock options?
A) US style stock options require you to exercise the option on the expiration date, whereas European allow you to exercise the option prior to the expiration date.
B) European options do not call it a strike price.
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.
D) None of the above.
Correct answer: C

Question 344: Which one of the statements below is correct considering moving average?
A) A moving average helps remove daily fluctuation from analysis.
B) The shorter the time period under consideration, the easier it is to predict long-term trends.
C) The longer the time period under consideration, the more sensitive the moving average is towards daily volatility.
D) A moving average is always computed using the same arithmetic model.
Correct answer: A

Question 348: Which of the following is NOT part of Fundamental Analysis?
A) Dividends
B) Company Earnings
C) Company Debt
D) Trading Volumne
Correct answer: D

Question 349: Which of the following is a correct way to desrcibe the Transition function T[s,a,s'] in Markov Decision Problems (MDP)?
A) probability that we are in state s' and we take action a, we get new state s
B) probability that we are in state a and we take action s, we get new state s'
C) probability that we are in state s and we take action s', we get new state a
D) probability that we are in state s and we take action a, we get new state s'
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 355: Which of the following best describes the factors taken into account in Technical Analysis ?
A) Technical Analysis looks only at Historical Price of the stock
B) Technical Analysis looks only at Historical Price and Volume of the stock
C) Technical Analysis looks at Book Value,Cash Flow and Dividends of the stock
D) Technical Analysis looks only at 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) Expected Return
B) Volatility

C) Sharpe Ratio
D) All of the above are used as inputs
Correct answer: C

Question 358: According to Black-Scholes Option Pricing Model, which one of the following assumptions isn't true?
A) No taxes would be applied.
B) Shares are infinitely divisible.
C) No dividends are spared.
D) Transactions costs would be applied.
Correct answer: D

Question 359: What is risk?
A) Standard deviation of historical daily returns
B) average daily returns
C) covariance of daily returns
D) mean variance optimization
Correct answer: A

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
B) Decrease skill at making prediction
C) Decrease breadth
D) Increase time of trading
Correct answer: A

Question 365: Which of the following is a model-free learning?
A) Random forest
B) KNN
C) Q-learning
D) Linear Regression
Correct answer: C

Question 367: Which of the following statement about options is NOT correct?
A) You will not lose more than the premium you paid for the option, no matter how far it moves against you.
B) Options do not have expiration date.
C) With options, you do not own the stock.
D) When you buy options, you pay the premium immediately to another person when you acquire the option contract.
Correct answer: B

Question 371: What is a benfit of reinforcement learning?
A) We can classify objects into different categories.
B) We can observe unknowns and assign rewards to them to reach a goal.
C) We can feed it training data and then test it on a different set.
D) None of the above.
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?
A) 1200
B) 1000
C) 900
D) 300
Correct answer: C

Question 379: What financial instrument did Michael Burry (portrayed by Christian Bale) use to short the housing market?
A) Put options on Real Estate Investment Trusts
B) Short selling real estate firms
C) Credit default swaps
D) CDOs (Collateralized Debt Obligations)
Correct answer: C

Question 380: According to Grinold's simplified Fundamental Law of Active Portfolio Management, which is a possible explanation for a threefold increase in performance?
A) A nine-times increase in the Information Coefficient.
B) A nine-times increase in the number of trades.
C) A two-times increase in the Information Ratio.
D) A three-times increase in the number of trades.
Correct answer: B

Question 381: What does Q(state, action) return?
A) Next state of the system.
B) Next action to be enacted.
C) Expected future reward of the given action at given state.
D) None of the above.
Correct answer: C

Question 382: Which of the following Efficient Markets Hypothesis assumptions is false?
A) Prices reflect all available information
B) Prices adjusts quickly
C) New information arrives randomly
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?
A) Stock prices are entirely random and unpredictable.
B) People often profit from insider trading, and as such it is illegal in the U.S.
C) Traders can profit from analysis of technical indicators only.
D) No profits can be made from only technical analysis.
Correct answer: B

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.
B) Because it does not have direct correlation with the portfolio's performance
C) Because it is too volatile.
D) Because you are not able to discretize it.
Correct answer: A

Question 396: Which form of Efficient Market Hypothesis (EMH) says we cannot make money in stock market based on insider information.
A) Strong
B) Weak
C) Semi-strong
D) None of the Above
Correct answer: A

Question 399: Risk of two securities with different expected return can be compared with:
A) Coefficient of variation
B) Standard deviation of securities
C) Variance of Securities
D) None of the above
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 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):
A) Bonds are lowest risk assets
B) Stocks are lowest risk assets
C) Blend of Stocks and Bonds could be lowest risk assets than either one of them individually
D) Modern Portfolio Theory shows Efficient Frontier only for Stocks as Bonds are considered risk free
Correct answer: C

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
B) When the agent only has experience from interacting with the environment
C) When the environment cannot be perfectly modeled
D) When an online learning algorithm implementation is desired
Correct answer: A

Question 411: What is true about the Efficient Frontier?
A) The purpose of the Efficient Frontier is show the range of least to most efficient portfolios
B) All portfolios below the frontier are sub-optimal in some way
C) In practice, most people try to be as close to the Efficient Frontier as possible.
D) The Efficient Frontier shows that reducing Return always lowers Risk
Correct answer: B

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?
A) $3.14
B) $314
C) $0
D) inf
Correct answer: D

Question 416: Which of the following portfolios would perform the best given Grinold's Fundamental Law of Active Portfolio Management?
A) 144 stocks managed by a manager skill of 5
B) 25 stocks managed by a manager skill of 5
C) 9 stocks managed by a manager skill of 10
D) 49 stocks managed by a manager skill of 10
Correct answer: D

Question 421: Which of the following describe trading strategies one would expect to use in momentum trading?
A) Buy low, sell high
B) Buy high, sell higher
C) Buy low, sell lower
D) Sell high, buy low
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
A) Investor 1
B) Investor 2
C) Investor 3
D) Investor 4
Correct answer: D

Question 430: which of the following is not part of the technical analysis?
A) calculate book value
B) calculate 20 day momentum
C) calculate 250 day moving average
D) calculate Bollinger band
Correct answer: A

Question 431: Which one of the following choices is NOT TRUE about options?
A) Options enable people to control more money using less money.
B) With options, we cannot lose more than the premium that we paid for that option up front.
C) Options can be bought and sold like stocks.
D) Options can be held on like stocks.
Correct answer: D

Question 449: A Markov decision problem is NOT defined by:
A) the potential states
B) the potential actions
C) the potential rule
D) the reward function
Correct answer: C

Question 453: Which of the following actions is NOT considered technical analysis of a stock?
A) Studying price history of the stock
B) Studying trading volume of the stock
C) Studying the S&P 500 trends
D) Calculating the book value of the stock
Correct answer: D

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.
B) Q-Learning can be applied to problem domains where all transitions are not fully defined.
C) No additional structures are required to store rewards – R(s,a).
D) Q-value for any state action pair takes into account future rewards.
Correct answer: A

Question 458: How does the alpha and gamma values in Q-learning relate to the agent learning/update?
A) The agent learns more quickly with larger alpha value and values later rewards more with smaller gamma
B) The agent learns more quickly with larger alpha value and values later rewards more with larger gamma
C) The agent learns more slowly with larger alpha value and values later rewards more with smaller gamma
D) The agent learns more slowly with larger alpha value and values later rewards more with larger gamma
Correct answer: B

Question 461: What are components of MarKov decision Problem?
A) Set of actions->Pi(policy), Transition functions, negative Reward function.
B) Set of States Prime, Set of actions, Set of States, Reward function.
C) Set of States, Set of actions, Transition functions, Reward function.
D) Sharpe Ratio, Set of actions, Transition functions, Set of actions.
Correct answer: C

Question 464: Which of these statements is False about technical analysis?
A) Technical analysis is effective on deciding short term strategy
B) Technical analysis is more effective when combining multiple indicators
C) Technical analysis considers the book value of a company
D) Technical analysis considers the historial price and volume of the stock
Correct answer: C

Question 465: Suppose two fund managers M1 and M2 have residual return alpha1 and alpha2, and mean(alpha1)=mean(alpha2), stdev(alpha1) > stdev(alpha2). If both managers have the same numbers of trades per year. Which manager do you think has better skills?
A) M1
B) M2
C) They are the same.
D) Cannot tell.
Correct answer: B

Question 466: Why did Charlie Geller and Jamie Shipley of Brownfield Capital get rejected by JP Morgan to acquire their ISDA?
A) Brownfield Capital didn't have enough fund managers to be considered large enough for an ISDA
B) Brownfield Capital didn't have enough money in their fund to be considered for an ISDA
C) Brownfield Capital hadn't been established long enough to meet ISDA age requirements
D) Charlie Geller and Jamie Shipley didn't have the correct licensing to file for an ISDA
Correct answer: B

Question 468: Which of the following statements is not true?
A) Systematic risk is that risk undertaken by exposure to any asset in the asset class.
B) Diversification mutes systematic risk.
C) Specific risk is the risk associated with a particular asset.
D) Diversification benefit decelerates as the portfolio becomes too diverse.
Correct answer: B

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Question 469: Which of the following makes up a Markov Decision Problem?
A) set of actions, transition function and state function
B) set of states, set of actions, transition function and reward function
C) set of states, reward function and action function
D) set of states, set of actions and reward function
Correct answer: B

Question 472: Which of the following is not an input of the mean variance optimization (MVO)?
A) Volatility
B) Covariance
C) Target return
D) Asset weights for portfolio that minimize risk
Correct answer: D

Question 475: Technical analysis uses:
A) historical price and volume; future dividends
B) historical price and volume
C) historical volume and projected economic indicators
D) historical volume
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
B) No. As portfolios are weighted sums of assets we cannot lower risk beyond the lowest risk asset. asset.
C) Yes. As we can switch between long and short positions on an individual asset, we can lower risk with an optimal strategy
D) No. Risk cannot be expressed as a number therefore there is no concept of lower risk.
Correct answer: A

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?
A) Unemployment Rate
B) Interest Rate
C) Gross Domestic Product
D) Economic Growth Rate

Correct answer: B

Question 484: Which market was being shorted in "The Big Short"?
A) Student Loans
B) Healthcare
C) Housing
D) Manufacturing
Correct answer: C

Question 487: Which version of the Efficient Market Hypothesis says that insider trading is the only way to make money?
A) Weak
B) Semi-Strong
C) Strong
D) Ultra-Strong
Correct answer: B

Question 488: Why is Dyna preferred over basic Q-Learning?
A) Dyna-Q can handle positive rewards, while basic Q-Learning cannot
B) Dyna-Q converges faster than Q-Learning
C) Basic Q-learning hallucinates extra data, rather than using actual data
D) Dyna-Q was designed for financial systems
Correct answer: B

Question 497: If S = spot price, E = exercise price, then the value of a put option is
A) MAX(0, E - S)
B) MAX(0, S - E)
C) MIN(0, E - S)
D) MIN(0, S - E)
Correct answer: A

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?
A) Buy Call
B) Buy Short
C) Cover Call
D) ButterFly
Correct answer: D

Question 505: Which of the following statement is TRUE in terms of CAPM beta?
A) Stock that has higher beta is better than stock that has lower beta.
B) If beta of a stock is greater than 1, it implies the stock has higher volatility than the market.
C) If beta of a stock is less than 1, it implies the stock has higher volatility than the market.
D) If beta of a stock is equal to 1, it implies the stock has the same level of risk as the stock market.
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.
B) Future market behaviour is independent of past.
C) Future stock stock price is random and follows no trend.
D) Both markets & stock are random, and difficult to model with high precision.
Correct answer: A

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.
A) Semi-strong : Technical Analysis, Insider Analysis
B) Semi-strong : Technical Analysis, Fundamental Analysis
C) weak : Fundamental Analysis, Technical Analysis, Insider Analysis
D) weak : Fundamental Analysis
Correct answer: B

Question 520: Which of the following is not an EMH assumption?
A) There are a large number of investors
B) New information arrives daily
C) Prices adjust quickly
D) Prices reflect all available information
Correct answer: B

Question 522: What are the inputs to the Mean Variance Optimization algorithm?
A) Daily returns, Standard Deviation, Correlation, Expected return
B) Expected return, Sharpe Ratio, Correlation, Target return
C) Expected return, Weights, Standard Deviation, Cumulative return
D) Expected return, Standard Deviation, Correlation, Target return

Correct answer: D

Question 523: Which of the following are characteristics of technical analysis as it relates to stock trading?
A) Price and earnings
B) Volume and book value
C) Price and volume
D) Book value and cash flow
Correct answer: C

Question 524: Which isn't a good indicator for technical analysis?
A) simple moving average
B) interest rates
C) momentum
D) Bollinger Bands
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?
A) Weak EMH only
B) Weak and Semi-strong EMH
C) Semi-strong EMH only
D) Semi-strong and Strong EMH
Correct answer: A

Question 536: What is NOT a technical analysis characteristic?
A) Earnings
B) Price
C) Volume
D) Both B and C
Correct answer: A

Question 542: Which of the following is true about Reinforcement Learning
A) It is a supervised learning technique
B) It's goal is to minimize some predefined reward
C) With regard to trading, Daily Returns is a good example of a reward.
D) With regard to trading, current position (long/short) in a stock is a good example of a reward.
Correct answer: C

Question 543: According to Grinold's Fundamental Law, the information ratio is computed as a performance metric that measures:
A) a portfolio manager's trading opportunities
B) a portfolio manager's quantitative skill
C) a portfolio's returns that exceed market performance
D) a portfolio's correlation of forecasts to returns
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%
A) ABC: 33.3%; PQR: 33.3%; XYZ: 33.3%
B) ABC: 25%; PQR: 25%; XYZ: 50%
C) ABC: 25%; PQR: 50%; XYZ: 25%
D) ABC: 50%; PQR: 25%; XYZ: 25%
Correct answer: D

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
B) B
C) C
D) All of the above
Correct answer: A

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
A) lower, equal, lower
B) equal, higher, lower
C) higher, equal, higher
D) equal, lower, lower
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?
A) Information Ratio
B) Information Coefficient
C) Breadth
D) Sharpe Ratio
Correct answer: B

Question 556: Given the Efficient Frontier of a portfolio, how can you find
the allocation for the maximum Sharpe Ratio portfolio?
A) Draw a tangent line from the maximum return value on the curve
to the y axis
B) Choose the point on the curve with lowest risk
C) Draw a tangent line from the origin to the efficient frontier
D) Not enough information
Correct answer: C

Question 562: What ratio is the basis for refuting the semi-strong EMH?
A) (Earnings / Price) Ratio
B) (Price / SMA) Ratio
C) (SMA / Price) Ratio
D) (Price / Earnings) Ratio
Correct answer: D

Question 565: How should you trade a stock when its moving average
reaches the upper bollinger band?
A) Sell
B) Buy
C) Hold
D) Long
Correct answer: A

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
Positve
A) 1 & 2 are correct
B) 1 & 4 are correct
C) 2 & 3 are correct
D) 3 & 4 are correct
Correct answer: A

Question 573: The main cause of 2007 housing crash was that banks were selling _____ CDO's consisting of _____ subprime loans
A) large , unstable
B) large, expensive
C) unstable , large
D) unstable, expensive
Correct answer: A

Question 586: Which of the following did NOT happen in the movie "The Big Short"?
A) Mark Baum interrupted a live presentation in the American Securitization Forum in Las Vegas.
B) Michael Burry sent an e-mail to restrict investors' withdrawals from Scion Capital.
C) Mark Baum was convinced to invest into CDOs after his pleasant meeting with the CDO manager.
D) Brownfield Fund collaborated with Ben Rickert to short AA tranches.
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?
A) Information Coefficient
B) Information Ratio
C) Sharpe Ratio
D) Buffett Index
Correct answer: B

Question 588: Which has the greatest effect on the information ratio?
A) Doubling information coefficient
B) Doubling breadth
C) Halving information coefficient
D) A and C
Correct answer: D

Question 591: If a trader increases his number of trades from 100 to 400, how much will his Information Ratio increase by?
A) 1 time
B) 2 times
C) 4 times
D) 8 times

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.
B) If the semi-strong form is correct, technical analysis and fundamental analysis cannot successfully predict future prices.
C) If the strong form is correct, technical analysis and fundamental analysis cannot successfully predict future prices.
D) Hedge fund fees may incentivize better market efficiency.
Correct answer: A

Question 597: Technical Analysis looks at which factors
A) Historical Price and volume
B) Dividends and earnings
C) Book value and cash flow
D) airspeed velocity of an unladen swallo
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
A) 140
B) 140.05
C) 141
D) 141.05
Correct answer: B

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 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?
A) Dr. Balch has more skill.
B) You have more skill.
C) Both of your skills are equal.
D) Can't determine with given information.
Correct answer: C

Question 613: What is the primary advantage of using the Dyna architecture?
A) Simulating experiences avoids the discretization step in Qlearning.
B) Simulating experiences allows us to efficiently find the optimal discount factor.
C) Simulating experiences is less expensive than interacting with the real world.
D) Simulating experiences changes Q-learning from a model-based approach to a model-free approach.
Correct answer: C

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?
A) s' is the state we will end up in if we take action a on state s
B) the sum of all probabilities with which we could end up in different states would be constant
C) s is the state we will end up in if we take action a on state s'
D) a is the set of actions that can be taken
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?
A) He ignored the housing bubble and went back to trading stocks
B) His hedge fund purchased real estate
C) He convinced banks to make the instruments, then sell them to him
D) He informed the SEC of the impending crisis
Correct answer: C

Question 628: In the movie The Big Short what happens at the end as a reaction to the financial meltdown?
A) Hundreds of bankers and ratings agencies executives went to jail.
B) The SEC was completely overhauled.
C) The Congress broke up big banks and the mortgage and derivatives industries were regulated.
D) Only one person, Kareem Serageldin from Credit Suisse was sent to jail.
Correct answer: D

Question 636: How is the short in The Big Short different from how we have applied shorting in the class?
A) The trading firms in the movie had more cash and could leverage their shorted stock higher than individual investors
B) The short did not involve borrowing and selling an actual security
C) The hedge funds were able to short more than 1000 shares at a time
D) The short was based on technical indicators across multiple big bank stocks
Correct answer: B

Question 639: Which of the following statements about Bollinger Bands(R) is FALSE?
A) The bands are drawn above and below the simple moving average
B) The width of the bands does not depend on the stock's volatility
C) Bollinger Bands can be used when implementing a mean reversion trading strategy
D) The width of the bands is determined using standard deviation
Correct answer: B

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?
A) Gambler's fallacy
B) Efficient Markets Hypothesis (EMH)
C) Game Theory
D) Capital Asset Pricing Model (CAPM)
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.
B) The future rewards value we are sure to gain over time.
C) The immediate reward minus a constant value.
D) The immediate reward plus a constant value.
Correct answer: A

Question 643: The Fundamental Law consists of the following:
A) Performance
B) Skill
C) Breadth
D) All of the above
Correct answer: D

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
B) A three times decrease
C) Zero Change encountered
D) A nine time increase
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%?
A) 20000
B) 40000
C) 400
D) 2000
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?
A) Company XYZ reports good earnings
B) Company XYZ releases a new product that they claim will be popular among consumers
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
D) Investor A spends time researching company XYZ

Correct answer: C

Question 659: Which of the following is not a form of the Efficient Market Hypothesis?
A) Semi-Weak
B) Weak
C) Semi-Strong
D) Strong
Correct answer: A

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?
A) Mortage-backed security (MBS)
B) Subprime mortgage bond (SMB)
C) Synthetic collateralized debt obligations (CDO-Squared)
D) Credit default swap (CDS)
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
D) None of the above.
Correct answer: C

Question 668: With regards to the Fundamental Law, what is summarized in the Information Coefficient?
A) Breadth
B) Beta
C) Skill
D) Performance
Correct answer: C

Question 670: With Efficient Markets Hypothesis (EMH), which form says that doing fundamental analysis is acceptable?
A) Weak form
B) Semi-Weak form
C) Semi-Strong form
D) Strong form
Correct answer: A

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
A) higher return, lower or same risk
B) same return, lower or same risk
C) higher return, higher risk
D) same return, higher risk
Correct answer: B

Question 680: Why were Collateralized Debt Obligation (or CDOs) offered by investment banks ticking time bombs, as per The Big Short?
A) CDOs were ETFs following the market.
B) CDOs contained high quality diverse range of assets
C) Investment banks started creating CDOs that included just the lowest rated tiers of mortgage-backed securities
D) Investment banks started creating CDOs that included both lower and high tier of mortgage-back securities.
Correct answer: C

Question 682: Which one doesn't make reinforcement learning different from other machine learning paradigms?
A) No labels in dataset
B) Utilize reward signal
C) Agent's actions affect the subsequent data it receives
D) Time really matters
Correct answer: A

Question 692: Is it possible to construct a portfolio with a higher return and a lower risk that 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.
B) No, the portfolio's risk is lower bound by the lowest risk of any individual asset it holds.
C) Yes, if you have the right mix of anti-correlated assets.
D) Yes, this mix is found on the peak of the efficient frontier.
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?
A) You are paying insurance for your won car, and Uncle Sam claims the money in the case of a crash.
B) You are paying insurance for Uncle Sam's car, and you claim the money in the case of a crash.
C) You are paying insurance for your own car, and you claim the money in the case of a crash.
D) You are paying insurance for Uncle Sam's car, and Uncle Sam claims the money in the case of a crash.
Correct answer: B

Question 695: In the Black-Sholes Formula, what does N(d2) mean?
A) probability of S < K
B) probability of S > K
C) probability of S < K
D) It means nothing.
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?
A) Long a Call
B) Long a Put
C) Long a Call and Long a Put
D) Short a Call and Short a Put
Correct answer: B

Question 698: The fundamental law is IR = IC * root(breadth). Which of the following statements is correct regarding the fundamental law?
A) Only IC can be improved easily
B) Only Breadth can be improved easily
C) Both IC and Breadth can be improved easily
D) Neither IC or Breadth can be improved easily
Correct answer: B

Question 701: If the weak form of the Efficient Market Hypothesis is correct, which of the following is true?
A) Inside Traders Cannot Succeed
B) Technical Analysis Cannot Work
C) Fundamental Analysis Cannot Work
D) Hedge Funds Cannot Succeed
Correct answer: B

Participation Exam Questions
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Question 702: What makes an "Efficient Frontier" efficient?
A) It takes the least amount of time to decide whether to buy or sell.
B) It contains the portfolios with the lowest Sharpe ratios
C) It allocates as much money as an investor has available to invest.
D) It contains the portfolios with the lowest possible risk given a particular amount of return.
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
B) "Strong", when the prices adjusted to publicly available information
C) "Strongest", when the prices reflect all public and private information
D) All of the above
Correct answer: A

Question 712: Which of the following may be used for technical analysis?
A) A company's book value
B) A company's stock price
C) A company's intangible value
D) A company's intrinsic value
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
B) Hangman
C) Battleship
D) Chess
Correct answer: A

Question 715: For the Strong form of the Efficient Market Hypothesis,
which is true?
A) Future prices can be predicted by analyzing historical prices
(technical analysis)
B) Future prices can be predicted using insider information.
C) Future prices can be predicted using public information
(fundamental analysis).
D) Future prices can not efficiently be predicted using technical
analysis, fundamental analysis, or insider information.
Correct answer: D

Question 721: Which of the following forms of the Efficient Markets
Hypothesis claim that even insider trading will not yield excessive returns?
A) Weak
B) Semi-Strong
C) Strong
D) None of the above
Correct answer: C

Question 722: Which of the following is not considered in the
Fundamental Law?
A) Performance
B) Rewards
C) Skill
D) Breadth
Correct answer: B

Question 731: Which of the following is not considered a technical
indicator?
A) Relative Strength Index (RSI)
B) P/E Ratio
C) 20-Day Moving Average
D) Bollinger Band®
Correct answer: B

Question 732: A credit default swap is most similar to
A) An insurance policy
B) A short sale
C) A hedge fund
D) A bundle of mortgages
Correct answer: A

Question 735: What is the formula for Grinold's Fundamental Law?
A) Performance = Skill * sqrt(Breadth)
B) Skill = Performance * sqrt(Breadth)
C) Breadth = Skill * sqrt(Performance)
D) Performance = Breadth * sqrt(Skill)
Correct answer: A

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?
A) Buy the stock
B) Do nothing
C) Sell the stock
D) It's impossible for the price to go above the upper band
Correct answer: C

Question 744: Weak EMH prohibits which of the following indicators?
A) Technical
B) Fundamental
C) Insider
D) None of the above
Correct answer: A

Question 748: What technical indicator is used to compute Bollinger Bands?
A) Momentum
B) Simple moving average (SMA)
C) Price over SMA
D) MACD
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?
A) Weak
B) Semi-Strong
C) Strong
D) Super-Strong
Correct answer: C

Question 757: Which of the following statements does NOT support Semi-Strong Form EMH?
A) The market quickly adjusts prices in response to new public information.
B) Future stock prices cannot be predicted using historic prices.
C) Exogenous information can be used to predict stock prices.
D) Private information on a company can help an investor profit in the market.
Correct answer: C

Question 760: What do you call an option which has no intrinsic value and will be worthless if expired?
A) At-the-money option
B) In-the-money option
C) Out-of-the-money option
D) Put option
Correct answer: C

Question 761: What is a covered call strategy?
A) write a stock & write a call
B) buy a stock & buy a call
C) buy a stock & write a call
D) write a stock & buy a call
Correct answer: C

Question 763: Which of the following is not a key assumption of the Efficient Markets Hypothesis?
A) There are a large number of investors acting in the market for profit.
B) New information arrives linearly.
C) Prices adjust quickly.
D) Current prices reflect all available information.
Correct answer: B

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
B) Bonds built out of mortgage loans
C) Homeowners not paying their mortgages on time
D) Falling house prices
Correct answer: A

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?
A) 0.02
B) 0.01
C) 0.015
D) 0
Correct answer: B

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?
A) Buy 200 shares of AAPL now!
B) Sell 200 shares of AAPL now!
C) Wait and see if the price of AAPL goes up before your contract runs out to decide what to do
D) Wait and see if the price of AAPL goes down before your contract runs out to decide what to do
Correct answer: C

Question 771: What is the Fundamental Law of Active Management by Grinold and Kahn?
A) Information Ratio = Information Coefficient * squareroot(Number of trading opportunities per year)
B) Information Ratio = Information Coefficient / Number of trading opportunities per year
C) Information Ratio = Information Coefficient * Number of trading opportunities per year
D) Information Ratio = squareroot(Information Coefficient) * Number of trading opportunities per year
Correct answer: A

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?
A) Above/to the left of the efficient frontier
B) On the efficient frontier
C) Below/to the right of the efficient frontier
D) Not enough information to know for sure
Correct answer: C

Question 775: Which of the following statement is incorrect?
A) The fundamental law is designed to give us insight into active management.
B) The fundamental law is designed to give us insight into passive management.
C) The fundamental law connects breadth and skill to the information ratio
D) All of the above are correct.
Correct answer: B

Question 779: To triple the information ratio of our hedge fund we can ...
A) Increase our Breadth by 3 times
B) Decrease our Information Coefficient by 3 times
C) Decrease our Breadth by 3 times
D) Increase our Breadth by 9 times
Correct answer: D

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
B) anti-correlation in short terms and positive-correlation in short terms
C) anti-correlation in long terms and positive-correlation in long terms
D) anti-correlation in long terms and positive-correlation in short 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
B) New information arrives randomly
C) Prices adjust quickly
D) Prices reflect all available information
Correct answer: A
Question :
Correct answer: