CMT LEVEL I
2019 Learning Objective Statements

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Level I. An Introduction to Technical Analysis

Section One: Theory and History of Technical Analysis

1. **The Basic Principle of Technical Analysis - The Trend**
   - Define what is meant by a trend in technical analysis
   - Explain why determining the trend is important to analysts
   - Identify primary, secondary, short-term, and intraday trends
   - Describe the basic beliefs behind the art of technical analysis
   - Define “fractal” as used in describing price action

2. **Dow Theory**
   - Describe the history of Dow Theory
   - Discuss the basic principles of Dow Theory
   - Identify the three basic types of trends identified in Dow Theory as defined by time: primary, secondary and minor
   - Identify the three basic trend patterns of all prices: upward, downward and sideways
   - Describe the “ideal market picture” according to Dow Theory
   - Express the concept of confirmation in Dow Theory
   - Explain the role of volume in Dow Theory

3. **History and Construction of Charts**
   - List advantages of reviewing price information in chart format
   - Review the data points required to construct line, bar, and candlestick charts
   - Describe how to construct line, bar, and candlestick charts
   - Explain the differences between arithmetic and logarithmic scales and their uses

Section Two: Charts, Trends and Patterns

4. **Trends - The Basics**
   - Explain why trend identification is important to achieve profits
   - Recognize an uptrend, a downtrend, and a trading range
   - Describe the concept of support and resistance
   - Identify trends using most common methods
   - Recall how significant reversal points are identified
   - List general rules for trendlines

5. **Breakouts, Stops and Retracements**
   - Describe and identify breakouts
   - List methods for confirming and filtering breakouts
   - Explain the purpose of entry and exit stops
   - Describe methods for setting entry and exit stops
   - Define retracements, pullbacks, and throwbacks
6 Moving Averages
Describe the basic principle of moving averages
Explain how to calculate simple, linearly weighted and exponentially smoothed moving averages
Identify trends and signals with moving averages
Describe and interpret Directional Movement Indicators
List common envelope, channel, and band indicators and their characteristics

7 Bar Chart Patterns
Define what is meant by “chart patterns”
List common characteristics of patterns
Discuss opposing viewpoints over whether patterns exist
Describe the influence of computer technology on price-pattern study
Identify classic chart patterns such as triangles, and double and triple tops and bottoms
Identify rounding chart patterns such as head-and-shoulders
Identify “half-mast” chart patterns such as flags and pennants

8 Short-Term Patterns
Locate reversals in longer-term trends using short-term price patterns
Describe the types of gaps that occur on price charts and their significance
Recognize wide-range and narrow-range bars and their implications for volatility
Identify one and two-bar reversal patterns
Identify common candlestick patterns and their significance within a trend

9 Confirmation
Define terms including overbought, oversold, failure swings, divergence, and reversal
Identify the methods of plotting volume information on price charts
Explain traditional general rules for interpreting volume data
List the major indexes and oscillators designed to use volume as confirmation
Describe open interest and how it might be used for confirmation
Explain the concept of momentum in price action
Identify characteristics and applications of indexes and oscillators such as MACD, RSI, and stochastics

10 Candlestick Charting Essentials
Describe strengths and limitations of candle charts
Identify the components of individual candle lines – real bodies and shadows
Explain how candles graphically depict the high, low, open, and close of a trading period
Identify candle confirmations of support and resistance

11 Point-and-Figure Charting
Define “box size” and “reversal”
Describe how point-and-figure charts are constructed
Explain the importance of box size to the sensitivity of point-and-figure charts
Construct various box size and reversal point-and-figure charts
Identify common point-and-figure patterns
Explain how trendlines are drawn on point-and-figure charts
Locate basic signals on a point-and-figure chart
Describe how price targets are obtained using a horizontal or vertical count on a point-and-figure chart

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Section Three: Advanced Concepts in Charting and Trend Analysis

12 Introduction to the Wave Principle
Describe the basic operating theory of the Wave Principle
Define motive waves and corrective waves
Identify types of motive waves such as impulse, extension and diagonal
Identify types of corrective waves such as zigzag, flat and triangle
Label waves using standard Elliott Wave notation
Describe Fibonacci relationships as applied to Elliott Wave analysis

13 The Anatomy of Elliott Wave Trading
Match the waves as labeled on a chart to the description in the text
List the waves considered the most advantageous to trade
Describe trade signals associated with various wave patterns

14 Measuring Market Strength
Explain the concept of divergence
Define market breadth
Identify signals of change in market breadth using the advance-decline line
Describe other measures of internal stock-market strength such as McClellan’s calculations
Explain the use of volume in measuring stock-market strength
Identify measures of stock-market strength from new high and new low data
Describe measures of stock-market strength based on the number of stocks priced above their moving average

15 Foundations of Cycle Theory
Name the two types of cycles
Identify the three defining characteristics of a cycle
List and define Hurst’s seven Principles of Commonality
Define a composite wave
Identify left and right translation
Describe a dominant cycle
Recall the tools which aid in cycle identification

16 Basics of Cycle Analysis
Explain how the annual cycle conforms to cycle theory
Describe two methods of detrending price data
Restate common seasonal tools
Memorize notable economic cycles and their periods
Recall some sequences/nonlinear cycles
Section Four: Markets and Volatility

17 Markets, Instruments, Data, and the Technical Analyst
Name four asset classes amenable to technical analysis
List five tradeable instruments that a technician is likely to employ
Describe data-handling issues with which a technician should be familiar

18 Equities
Define equity securities and primary data types
Describe the benefits of equities for investors
Identify the effect of corporate actions on price data
Classify sectors, capitalization and other ways to segment the market

19 Indexes
Identify major global equity indexes
Name common non-equity indexes used by technical analysts
Explain weighting methods used in major indexes
Define “survivorship bias”

20 Fixed Income / Bonds
List the major types of issuers of debt securities
Identify the basic terms of a debt instrument: duration, maturity, coupon, issuer
State the ways in which debt prices are expressed
Explain the relationship between price and yield
Define “yield curve”
Describe the importance of US government debt in the pricing of other debt securities: “yield (or credit) spread”

21 Futures
Explain the purpose of futures markets
Classify various futures markets as industrial, agricultural, financial, and so on
List the major terms of a futures contract
Define open interest in futures
Describe challenges technicians face when using futures market data

22 Exchange-Traded Products (ETPs)
Define an exchange-traded product
Review differences between exchange-traded funds (ETFs) and exchange-traded notes (ETNs)
Describe the uses for leveraged ETPs

23 Foreign Exchange (Currencies)
Identify the base and quote currencies in a pair
Classify currency pairs as “major” or “cross”
Discuss the impact on technical analysis of the “dealer market” system of currency trading
Explain the data used in building currency charts
Describe cryptocurrencies
24 Options
Explain the purpose of options markets
List the major terms of an option contract
Describe “the Greeks”
Define implied volatility

25 Understanding Implied Volatility
Explain the difference between historical and implied volatility
Describe the concept of put-call parity
Discuss how implied volatility may be used to estimate price movement
State how to calculate single-day implied volatility

26 About the VIX Index
Describe the VIX index
Explain the implications of a rising or falling VIX index
State how to calculate expected 30-day market movement

Section Five: Behavioral Finance and Other Theories of Market Dynamics

27 What is the Efficient Market Hypothesis
Identify the basic concept of the Efficient Market Hypothesis (EMH)
Describe the three forms of the EMH
Explain the characteristics of stock prices as a martingale

28 The EMH and the “Market Model”
Describe the basic components of the CAPM model
Identify valid criticisms of the CAPM model

29 The Forerunners to Behavioral Finance
Explain momentum strategies and mean-reversion strategies
Define the general concept of value investing
Describe why value investing is similar to a mean-reversion approach

30 Noise Traders and the Law of One Price
Define “fungibility” in the context of financial markets
Explain “arbitrage”
Describe “noise” vs. “information”
Define “noise trader”

31 Noise Traders as Technical Traders
Explain why technical traders are considered a specific type of noise trader
Describe the actions of technical traders as noise traders in the context of market valuation

32 Academic Approaches to Technical Analysis
Describe how technical analysis remains relevant despite the EMH
Discuss how the Adaptive Market Hypothesis reconciles the EMH with technical and behavioral factors
33 Market Sentiment and Technical Analysis
Define “sentiment” as it relates to financial markets
Identify general categories of informed and uninformed participants
Discuss the importance of the “crowd”
Describe the challenges of using sentiment indicators

34 Sentiment Measures from Market Data
Describe VIX as a sentiment measure
Explain the use of options volume and open interest as sentiment indicators
Describe the use of futures open interest in gauging sentiment
Identify the three primary groups in the Commitments of Traders report
Define short interest
Explain insider activity as a sentiment indicator

35 Sentiment Measures from External Data
Describe the use of news and advisories as sentiment measures
Explain the concept of contrary opinion
Indicate how mutual fund cash and other funds measures are used to gauge sentiment

Section Six: Basic Statistics for the Technical Analyst

36 Introduction to Descriptive Statistics
Describe the three most common measures of central tendency: mean, median and mode
Discuss alternative methods of calculating the mean and their uses
Describe what is meant by “measures of dispersion”
Explain two measures of dispersion: standard deviation and variance
State the value of data visualization as a complement to descriptive statistics

37 Introduction to Probability
Define probability
Explain the impact of the law of large numbers on a series of outcomes
Define random variable and the phrase “independent and identically distributed”
Describe a normal probability distribution
Identify skew and kurtosis

Section Seven: Perspectives on Technical Trading Systems

38 Objective Rules and Their Evaluation
Describe objective and subjective methods in technical analysis
Define “rule” as used in trading systems
Explain binary rules as well as individual and multiple thresholds
Identify traditional rules and inverse rules
Discuss the importance of benchmarking in evaluating trading rules
Describe the value of using detrended prices

39 Being Right or Making Money
List the four key characteristics Ned Davis claims are common to successful investors
Identify Ned Davis’ nine rules to consider when building a timing model
Discuss the theory behind “contrary opinion”

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40  The Model Building Process
Describe “internal” and “external” indicators
Explain the use of valuation indicators as sentiment measures
Describe the basic relationships of economic growth, Fed policy and money supply
Discuss the use of moving average signals based on “crossings” and “slopes”
Explain the use of price momentum and indicator momentum
Identify the problem of curve-fitting, or overoptimization

41  Relative Strength as a Criterion for Investment Selection
Define relative strength
Explain the value of relative strength in analyzing stock price movements
List several relative strength ratios that may be calculated
Identify some of the limitations of relative strength in investment decisions