LO.a: Distinguish between the method of comparables and the method based on forecasted fundamentals as approaches to using price multiples in valuation, and explain economic rationales for each approach.

1. Bottles Co. is trading at a P/E multiple of 5. The average industry P/E multiple is 6. Based on a DCF valuation, its justified P/E based on forecasted fundamentals is 4. Bottles Co. is:
   A. undervalued based on forecasted fundamentals but overvalued based on method of comparables.
   B. overvalued based on forecasted fundamentals but undervalued based on method of comparables.
   C. overvalue based on forecasted fundamentals but fairly valued based on method of comparables.

LO.b: Calculate and interpret a justified price multiple.

2. Bradman Co. is currently trading at $30 per share. Its forecasted EPS for next year is $5. The company's value based on a discounted dividend model is $25 per share. The company's justified forward P/E is:
   A. 6.
   B. 5.
   C. 4.

LO.c: Describe rationales for and possible drawbacks to using alternative price multiples and dividend yield in valuation.

3. A possible drawback for using the P/E ratio for valuation purposes is that:
   A. the use of different accounting methods does not distort EPS values.
   B. it is an uncommon method for valuation.
   C. it can be meaningless if earnings are negative.

4. Compared to the P/E ratio, P/B is:
   A. not meaningful when EPS is zero.
   B. more meaningful when EPS is highly variable.
   C. not applicable for companies expected to go into liquidation.

LO.d: Calculate and interpret alternative price multiples and dividend yield.

5. Bamboo Inc. paid a dividend of $1 last year. The expected dividends for the next four quarters are $0.20, $0.25, $0.30 and $0.05. The stock currently trades at $8. The leading dividend yield is *closest* to:
   A. 10.0%.
   B. 12.5%.
   C. 2.5%.

LO.e: Calculate and interpret underlying earnings, explain methods of normalizing earnings per share (EPS), and calculate normalized EPS.

6. Tesma Ltd. reported earnings of $800 last year. Upon studying the notes to financial statements, an analyst identifies the following items which were included in earnings:

Sales from a new product launched	$200
Gain on sale of a business segment	$300
Restructuring expenses	$100

The company's earnings, adjusted for nonrecurring items, are *closest* to:
A. $800.
B. $400.
C. $600.

LO.f: Explain and justify the use of earnings yield (E/P).

7. Which of the following statements about earnings yield is *most likely* true?
   A. When comparing companies based on earnings yield, the company with the highest earnings yield is the cheapest.
   B. When comparing companies based on earnings yield, the company with the lowest earnings yield is the cheapest.
   C. Earnings yield can never be negative.

LO.g: Describe fundamental factors that influence alternative price multiples and dividend yield.

8. All else equal, the justified P/E of a stock based on forecasted fundamentals is:
   A. directly related to the stock's required rate of return.
   B. inversely related to growth rate.
   C. inversely related to the stock's discount rate.

LO.h. Calculate and interpret the justified price-to-earnings ratio (P/E), price-to-book ratio (P/B), and price-to-sales ratio (P/S) for a stock, based on forecasted fundamentals.

9. Boxer Inc.'s data is given below:

Number of shares outstanding	Annual net sales	Book value of equity	Current share price	Value as per DCF
10,000	$150,000	$250,000	$45	$50

The company's justified price to sales and price to book multiples are:

	Justified Price to Sales	Justified Price to Book
A.	3.33	2.00
B.	3.00	1.80
C.	2.00	3.33

LO.i: Calculate and interpret a predicted P/E, given a cross-sectional regression on fundamentals, and explain limitations to the cross-sectional regression methodology.

10. A possible drawback of using cross-sectional regression to estimate P/E is that:
    A. the relationship between P/E and the fundamental variables remains constant.
    B. the predictive power of the estimated P/E from regression can change over time.
    C. the method shows valuation relationships for different stocks over different time periods.

LO.j: Evaluate a stock by the method of comparables and explain the importance of fundamentals in using the method of comparables.

11. The P/E ratios of companies in the aviation industry are given below:

Company	P/E ratio
Delta Airlines	5.6
Air Magma	8.0
Industry average	7.0

The *best* explanation for the ratios is:
    A. Delta Airlines has a cost of equity lower than the industry.
    B. Air Magma has higher-than-average expected earnings growth than the industry.
    C. The industry's cost of capital is lower than Air Magma.

LO.k: Calculate and interpret the P/E-to-growth ratio (PEG) and explain its use in relative valuation.

12. The price, earnings and growth data for companies in the shoe industry are given below:

Company	Earnings	Share price	Earnings growth forecast
Service Industries	$8	$64	4%
Bafa Ltd.	$5	$40	8%
Hush Pupples	$6	$66	6%

Based on the P/E-to-growth (PEG) ratio, the stock that is the cheapest on a relative basis is:
    A. Service Industries.
    B. Bafa Ltd.
    C. Hush Pupples.

LO.l: Calculate and explain the use of price multiples in determining terminal value in a multistage discounted cash flow (DCF) model.

13. The earnings estimate for Poongko Ltd. five years from now is $2.5 per share. The EPS in the sixth year is expected to be $2.75. The average industry trailing P/E ratio is 4. The terminal value in year five is *closest* to:
    A. $10.0.
    B. $11.0.
    C. $10.5.

LO.36.m: Explain alternative definitions of cash flow used in price and enterprise value (EV) multiples and describe limitations of each definition.

14. Which of the following statements about EBITDA is *most likely* true?
    A. EBITDA is pretax operating cash flow to equity holders.
    B. EBITDA is pretax operating cash flow to equity and debt holders.
    C. Interest expense is added back to EBITDA to obtain cash flow from operations.

15. A possible drawback of earnings plus noncash charges is that:
    A. working capital investment is ignored.
    B. depreciation is not added back to earnings.
    C. interest expenses are ignored.

LO.n: Calculate and interpret EV multiples and evaluate the use of EV/EBITDA.

16. The details for Boxter Ltd. are as follows:

Market value of equity:	$1,500
Market value of debt:	$900
Minority Interest:	$400
Cash and equivalents:	$200
EBITDA:	$100

The company's EV/EBITDA ratio is *closest* to:
    A. 26.
    B. 28.
    C. 30.

LO.o: Explain sources of differences in cross-border valuation comparisons.

17. Which of the following is *least likely* a factor that makes relative valuation difficult on a cross-border basis?
    A. Difference in interest rates.
    B. Differences in accounting methods.
    C. Differences in market values of a firm in the same industry but trading in different countries.

LO.p: Describe momentum indicators and their use in valuation.

18. An abnormally high return on a stock can be explained by:
    A. a negative earnings surprise.
    B. high standardized unexpected earnings.
    C. a sign of reversal in an upward trending price graph.

LO.q: Explain the use of the arithmetic mean, the harmonic mean, the weighted harmonic mean. and the median to describe the central tendency of a group of multiples.

19. Which of the following statements about the central tendency measures applied to a group of multiples is *least likely* true?
    A. Extreme outliers will affect arithmetic mean.
    B. For an equally weighted portfolio, harmonic and weighted harmonic mean will not be equal.
    C. For an equally weighted portfolio, weighted average and arithmetic mean will be equal.

LO.r: Evaluate whether a stock is overvalued, fairly valued, or undervalued based on comparisons of multiples.

20. The following multiples are given for Heavenly Beverages:

	Heavenly Beverages	Industry (Average)
Price to earnings	5.8	6.5
EV/EBITDA	7.0	6.0
Price to Book	2.3	3.0

Compared to the industry, the stock of Heavenly Beverages is *most* likely:
A. undervalued with respect to P/E and overvalued with respect to EV/EBITDA.
B. overvalued with respect to P/E and undervalued with respect to EV/EBITDA.
C. undervalued with respect to P/B and undervalued with respect to EV/EBITDA.

Solutions:

1. **B** is correct. Bottles Co.'s P/E multiple based on market price is less than the average industry P/E, hence the company is undervalued based on method of comparables. Its P/E based on market price (i.e. traded) is higher than the justified P/E based on DCF, therefore it is overvalued based on forecasted fundamentals. Section 2.1.

2. **B** is correct. The company's value using DDM is $25 per share. Its forecasted EPS is $5. Therefore, its justified forward P/E is 25/5 = 5. Section 3.1.3.

3. **C** is correct. Negative earnings result in a meaningless P/E ratio. Option A is incorrect because the application of different accounting methods may distort EPS values. Option B is incorrect because P/E ratio for valuation is widely used by investors. Section 3.

4. **B** is correct. Book value of a company is generally more stable than earnings which makes P/B ratios more meaningful. Options A & B are incorrect. P/B may be used when EPS is zero or negative. P/B ratios have been used in valuation of companies expected to go into liquidation. Section 3.2.

5. **A** is correct. The next year's dividend is equal to 0.2 + 0.25 + 0.3 + 0.05 = 0.8. The leading dividend yield is therefore 0.8/8 = 10%. Section 3.5.

6. **C** is correct. Gain on sale of a business segment and restructuring charges are nonrecurring items, hence not part of core earnings. Therefore, adjusted earnings for nonrecurring items (assuming no taxes) are $800 – 300 (gain on sale) + 100 (restructuring charges) = $600. Sales of new product are expected to continue in future therefore considered part of core earnings. Section 3.1.2.1.

7. **A** is correct. The stock with the highest earnings yield is the cheapest and the one with the lowest earnings yield is the most expensive. Earnings yield CAN be negative for negative earnings. Section 3.1.2.4.

8. **C** is correct. The justified P/E of a stock is inversely related to its required rate of return (discount rate). Its positively related to growth rate(s). Section 3.1.4.

9. **A** is correct. The sales per share is 150000/10000 = $15 and book value per share is 250000/10000 = $25. The justified price is $50 as per DCF. Justified P/S = 50/15 = 3.33 and justified P/B = 50/25 = 2. Sections 3.2.2., 3.3.2.

10. **B** is correct. The predictive power of results from regression at any point in time can be expected to change, because distributions of multiples change over time. The relationship between P/E and fundamentals may CHANGE over time. The method does NOT capture relationships for a different stock and different time periods. Section 3.1.4.2.

11. **B** is correct. Air Magma has higher-than-average expected earnings growth than the industry, therefore its P/E multiple is higher than the industry. Delta airlines' cost of equity should be

higher than the industry as its P/E is lower and the industry's cost of capital must be higher than Air Magma as the industry P/E is less than that of Air Magma. Section 3.1.5.

12. **B** is correct. The P/E-to-growth ratios are given below:

Company	Earnings	Share price	Growth	P/E	PEG (P/E / g)
Service Industries	$8	$64	4%	8	2
Bafa Ltd.	$5	$40	8%	8	1.00
Hush Pupples	$6	$66	6%	11	1.83

Based on the PEG ratio, Bafa Ltd. appears to be the cheapest, since it has the lowest PEG ratio. Section 3.1.5.

13. **A** is correct. The terminal value based on trailing P/E is 4 x 2.5 = $10. Section 3.1.1.

14. **B** is correct. EBITDA represents pretax operating cash flow to both equity and debt holders as interest cost and dividends are both paid out from EBITDA after deducting tax. Section 4.1.

15. **A** is correct. Earnings plus noncash charges ignores items such as working capital investment and fixed capital investment. Interest expenses are already deducted in net income whereas depreciation charges are added back. Section 3.4.

16. **A** is correct. EV is given by market value of debt + market value of equity + minority interest - cash and equivalents. EV is therefore 1500 + 900 + 400 - 200 = $2600. EV/EBITDA is $2,600/$100 = 26. Section 4.1.

17. **C** is correct. Differences in market values of individual companies in the same industry but trading in different countries is a common factor and is unlikely to create difficulty in relative valuations. The differences in interest rates and risks as well as accounting methods across different countries for individual companies in the same industry makes relative valuation difficult. Section 5.

18. **B** is correct. All else equal high standardized unexpected earnings can indicate a large positive earnings surprise resulting in high stock returns. Therefore, Option A is incorrect. Option C is incorrect because a reversal will indicate a decrease in price and returns. Section 6.

19. **B** is correct. For an equally weighted portfolio, the harmonic and weighted harmonic mean **WILL** be equal. Section 7.

20. **A** is correct. The stock's P/E is less than industry average therefore it is undervalued with respect to P/E. Its EV/EBITDA is higher than industry average therefore it is overvalued with respect to EV/EBITDA. Sections 2.1, 4.

