LO.a: Classify merger and acquisition (M&A) activities based on forms of integration and relatedness of business activities.

1. Bell Software Inc. is purchased by PLE Pipes such that Bell Software ceases to exist; all its assets and liabilities become a part of PLE Pipes. This is an example of a:
   A. statutory merger.
   B. subsidiary merger.
   C. consolidation.

2. Nest plc. a global frozen vegetables distributor acquires Green Farms, producers of fresh vegetables, for $150 million. This would be an example of:
   A. a horizontal merger.
   B. backward integration.
   C. forward integration.

LO.b: Explain common motivations behind M&A activity.

3. Which of the following statements is *least accurate*? Synergy created in a merger is when the:
   A. sum of the parts of a company are worth more than combined company as a whole.
   B. combined company as a whole is worth more than sum of its parts.
   C. costs are either reduced or revenues enhanced.

4. Alpine Pharma has shown poor performance resulting in accumulation of tax losses over the last two years. Care Pharmaceuticals, a large-cap company in the same industry announces its intention to acquire Alpine. Care believes that Alpine can be purchased for less than its breakup value and it can take advantage of Alpine's research facilities. Care's motives for the merger are *least likely* for:
   A. tax reasons.
   B. diversification.
   C. unlocking hidden value

LO.c: Explain bootstrapping of earnings per share (EPS) and calculate a company's post-merger EPS.

5. Company A with earnings of $100 million and a P/E ratio of 20, acquires Company T in an all-cash transaction. Company T has earnings of $20 million and a P/E ratio of 10. The combined company is expected to have earnings of $120 million. Assuming markets are efficient, and investors recognize the bootstrapping effect, the P/E of the combined company will *most likely* be:
   A. 20.
   B. more than 20.
   C. less than 20.

6. Global Enterprise is planning to acquire Super Tech by issuing new shares. The following table gives the financial information of the two companies prior to the merger.

	Global Enterprise	Super Tech
Stock price	$80.00	$40.00
EPS	$4.00	$2.50
P/E	20.0	16.0
Total shares outstanding	125,000	75,000
Total earnings	$500,000	$187,500
Market value of equity	$10,000,000	$3,000,000

Assuming no synergies, the EPS of the combined company will be *closest* to:

A. $3.25.
B. $4.00.
C. $4.23.

LO.d: Explain, based on industry life cycles, the relation between merger motivations and types of mergers.

7. When an industry is characterized by high profit margins due to few competitors, the types of mergers *most likely* are:
   A. conglomerate, horizontal.
   B. vertical.
   C. vertical, conglomerate.

8. When an industry is in the mature growth stage, the *least likely* type of merger is:
   A. horizontal.
   B. conglomerate.
   C. vertical.

LO.e: Contrast merger transaction characteristics by form of acquisition, method of payment, and attitude of target management.

9. Compared to the stock purchase form of an acquisition, an asset purchase *most likely* requires:
   A. shareholders' approval.
   B. no payment of taxes at corporate level.
   C. direct payment to target company and not to the shareholders.

10. Company X acquires Company Y, in a stock offering at an exchange ratio of 0.65 shares of Company X for every Company Y share. Company X's share price on the day of the merger was $40, and Company Y has 500,000 shares outstanding. The cost of acquisition for Company X (in millions) is:
    A. $13.00
    B. $20.00
    C. $0.33

11. In a hostile bid, when the acquirer bypasses the target company's CEO and management and submits the merger proposal directly to the board of directors, it is known as a:
    A. bear hug.
    B. proxy fight.
    C. tender offer.

LO.f: Distinguish among pre-offer and post-offer takeover defense mechanisms.

12. Which of the following is *not* a pre-offer takeover defense mechanism?
    A. poison pills.
    B. staggered board of directors.
    C. greenmail.

13. Arcel Steel became a target of a hostile bid from RJT Manufacturers. As a result, Arcel sought the help of Servisteel to come to its rescue in lieu of the hostile bid. This led to a competitive bidding situation between RJT and Servisteel, with RJT eventually buying Arcel. The defense used by Arcel to pursue Servisteel, a third party which prompted a higher bid from RJT, is called a:
    A. crown jewel defense.
    B. white knight defense.
    C. white squire defense.

LO.g: Calculate and interpret the Herfindahl–Hirschman Index and evaluate the likelihood of an antitrust challenge for a given business combination.

14. Company P is interested in acquiring Company R. Both companies are in the oil production industry. The industry has six companies including P and R. The largest company has a market share of 25 percent, and the remaining companies, including P and R, have a market share of 15 percent each. If Companies P and R merge, the HHI will increase by:
    A. 100.
    B. 50.
    C. 450.

15. Company P is interested in acquiring Company R. Both companies are in the oil production industry. The industry has six companies including P and R. The largest company has a market share of 25 percent, and the remaining companies, including P and R, have a market share of 15 percent each. The regulatory authorities responsible for antitrust issues, in response to the merger announcements will probably:
    A. take no action.
    B. investigate the merger.
    C. challenge the merger.

LO.h: Compare the discounted cash flow, comparable company, and comparable transaction analyses for valuing a target company, including the advantages and disadvantages of each.

16. The advantage of using a discounted cash flow analysis when valuing a target company is that:
    A. expected changes in the target's cash flows can be modeled.
    B. an estimate of the target's intrinsic value is obtained from relative value measures of similar companies.
    C. the takeover value estimate is based on recent similar transactions completed in the market.

17. Which of the following is an advantage of using the comparable company analysis?
    A. It is difficult for analysts to integrate any changes in the analysis.
    B. The method is sensitive to market mispricing.
    C. Value estimates are derived from the required data readily available in the market.

18. Which of the following is *most likely* an advantage of comparable transaction analysis?
    A. An estimate of takeover premium is not required since it is obtained directly from the analysis.
    B. The comparable transactions needed for the analysis may not be sufficient for calculating the takeover value.
    C. The specific changes in the target's capital structure cannot be easily incorporated in the analysis.

LO.i: Calculate free cash flows for a target company and estimate the company's intrinsic value based on discounted cash flow analysis.

19. Crimson Corporation is considering the acquisition of Gamma Tech. The following data relates to Gamma Tech. The free cash flow is projected to grow at a constant rate of 6% per annum after four years. Using the discounted cash flow approach the value per share of Gamma Tech. is *closest* to:

Year	**1**	**2**	**3**	**4**
Free Cash Flow ($ mil)	12	14	17	20
Terminal Growth Rate				Annual growth of 6% after year 4
WACC	10%			
Value of Debt	$200 million			
# of shares	10 million			

    A. $41
    B. $21
    C. $50

LO.j: Estimate the value of a target company using comparable company and comparable transaction analyses.

20. Paper & Pen (P&P) is considering the acquisition of Real Books. Joel Wilhelm, CFO of P&P, has calculated the mean values for each of the following valuation metrics of three comparable companies:

Relative Valuation Ratio	Mean
P/E	17.00
P/CF	7.50
P/S	2.00

Joel further calculates the following data for Real Books and uses the mean values of the relative valuation metrics of the comparable companies.

Valuation Variables	**Real Books**
Earnings per share	$2.00
Cash flow per share	$4.25
Sales per share	$16.50

The mean takeover premium from three most recent takeovers of companies similar to Real Books is 20 percent. Applying the comparable company analysis to the information given above, the fair acquisition price of Real Books is *closest* to:

A. $33.
B. $40.
C. $42.

21. Jim James is estimating the fair takeover price for Universal Industries' proposed acquisition of CMX Manufacturers. James has gathered the acquisition price and relevant data of three recent acquisitions of companies operating in the same industry as CMX. The following are the estimates of CMX's valuation variables and calculations of the relative valuation ratios of comparable companies which have undergone acquisition. The fair acquisition price of CMX based on the comparable transaction analysis is *closest* to:

Valuation Variables	CMX	Comparable Companies	Mean Multiple Paid for Comparable Companies
Earnings per share	$3.00	P/E	15
Cash Flow per share	$5.00	P/CF	10
Book Value per share	$14.00	P/BV	3

A. $42.
B. $50.
C. $46.

LO.k: Evaluate a takeover bid and calculate the estimated post-acquisition value of an acquirer and the gains accrued to the target shareholders versus the acquirer shareholders.

22. Lucid Technologies is in negotiations with SPC Telecom to acquire it in a cash offer of €8 per share of SPC stock. The merger will result in synergies of €100 million. Following is the pre-merger data of both companies.

	Lucid Technologies	SPC Telecom
Pre-merger stock price	€10	€5
Number of shares outstanding (millions)	60	20
Pre-merger market value (millions)	€600	€100

Calculate the merger gain in millions of SPC's (target) shareholders and Lucid's (acquirer) shareholders?

A. €60; €40.
B. €50; €50.
C. €160; €100.

23. Hope Medical Services has presented an all stock offer to shareholders of Mediland Health. The merger will create synergies of $150 million. The exchange ratio is 0.90 shares of Hope stock per share of Mediland stock owned. Following is the pre-merger data of both companies:

	Hope Medical Services	Mediland Health
Pre-merger stock price	$20.00	$15.00
Number of shares outstanding (millions)	70	30
Pre-merger market value (millions)	$1,400	$450

The total value in millions paid to Mediland shareholders is *closest* to:

A. $557.
B. $620.
C. $530.

LO.l: Explain how price and payment method affect the distribution of risks and benefits in M&A transactions.

24. The form of payment in a merger is *least likely* dependent upon:

A. confidence in synergies created.
B. relative value of acquirer's shares.
C. the regulator.

25. The acquiring company will prefer payment by cash, if the managers are confident about:

A. the absence of antitrust issues.
B. the bootstrap effect.
C. realizing estimated synergies.

LO.m: Describe characteristics of M&A transactions that create value.

26. Which of the following is *not* a characteristic of M&A deals that earn high returns?

A. A strong buyer with earnings and share price growth above industry average.
B. A relatively high transaction premium.
C. Favorable market reaction after announcement of the deal.

LO.n: Distinguish among equity carve-outs, spin-offs, split-offs, and liquidation.

27. A divestiture is when a company decides to:

A. offer an equity carve-out.
B. sell, spin-off a division, or liquidate a division.
C. merge two divisions.

28. General Appliances (GA) has formed a new, separate company of its spare parts division – Delta. GA has given its shareholders a proportional number of shares in Delta. This form of corporate restructuring is *best* known as a(an):
    A. split-off
    B. spin-off.
    C. equity carve-out.

LO.o: Explain common reasons for restructuring.

29. Restructuring is *most likely* undertaken by a company when:
    A. a division is a good strategic fit within the company.
    B. it is cash rich.
    C. there is a change in its strategic focus.

Solutions

1. A is correct. In a statutory merger the company acquired ceases to exist and all its assets and liabilities become a part of the acquirer. Section 2.

2. B is correct. Nest purchases Green Farms which is ahead of it in the value chain. This is an example of backward integration. Section 2.

3. A is correct. Synergy is when the combined company as a whole is worth more than the sum of its parts, costs are reduced due to economies of scale and revenues increased. Section 3.

4. B is correct. The motivation is least likely to be diversification because both companies are in the same line of business. Diversification is typically not even in the best interests of shareholders of conglomerates because investors in well-functioning capital market can diversify their own portfolios at a lower cost. Section 3.

5. C is correct. When there are no gains from synergy or other factors, share prices are not expected to increase and an acquirer trading at a higher P/E multiple purchases a company at a lower P/E multiple, its combined P/E will decline. The P/E does not stay the same because the market recognizes the bootstrapping effect, and adjusts the post-merger P/E accordingly. Section 3.6.

6. C is correct. If there are no synergies, the earnings of the combined company will be \$687,500. To acquire Super Tech, Global will have to issue 3,000,000/80 = 37,500 new shares. Post-acquisition, Global's total number of shares outstanding will be 125,000 + 37,500 = 162,500. The post-merge EPS will be 687,500/162,500 = \$4.23. Section 3.6.

7. A is correct. An industry characterized by high profit margins due to few competitors is most likely in the rapid accelerating growth stage. In this case the most common mergers are conglomerate and/or horizontal. Example 4.

8. B is correct. If an industry is in the mature growth stage, companies may engage in horizontal and/or vertical mergers to achieve economies of scale and operational efficiencies. Example 4.

9. C is correct. In an asset purchase payment is made to the selling company rather than its shareholders. Section 4.1.

10. A is correct. Acquisition Cost to Company X = $\text{Exchange ratio} \times \text{target's shares outstanding} \times \text{value of stock given to target shareholders} = 0.65 \times 500{,}000 \times 40 = \$13\ million.$ Section 4.2.

11. A is correct. In a hostile merger, the acquirer may decide to circumvent the target management, submitting a merger proposal directly to the target company's board of directors and bypassing the CEO. This tactic is known as a bear hug. Section 4.3.2

12. C is correct. Greenmail is a post-offer takeover defense mechanism, which allows the target to repurchase its own shares from the acquirer, usually at a premium to the market price. Section 5.2.

13. B is correct. A target usually initiates a white knight defense by seeking out another company that has a strategic fit with the target. Based on a good strategic fit, the third party can often justify a higher price for the target than what the hostile bidder is offering. Section 5.2.8.

14. C is correct. The pre-merger HHI is 1750 and post-merger HHI is 2200. The change in HHI is 450.

Company	Pre-Merger Market Share %	Market Share Squared	Company	Post-Merger Market Share %	Market Share Squared
1	25	625	1	25	625
2-P	15	225	2 & 3	30	900
3-R	15	225	4	15	225
4	15	225	5	15	225
5	15	225	6	15	225
6	15	225			

HHI = 1,750   HHI = 2,200

HHI Change = 450.

15. C is correct. HHI increases by 450 points, and the industry concentration level also moves from moderately to highly concentrated. The probable action by regulatory authorities is thus to challenge the merger between Companies P and R. Section 6.1.

16. A is correct. One of the advantages of DCF analysis is that changes in the target's cash flows can be modeled readily. Section 7.

17. C is correct. The availability of the market data used to derive the estimate of the target is an advantage of comparable company analysis. Section 7.1.2.

18. A is correct. In comparable transaction analysis the takeover premium is derived directly from the analysis, hence there is no need to calculate it separately. Section 7.1.3.

19. B is correct. The Terminal Value = FCF at the end of fifth year/(WACC – g) = $\frac{20(1.06)}{0.10-0.06} = \$530\ million$. Calculating PV of Free Cash Flows and Terminal Value using the FC:

    CF_1 = 12, CF_2 = 14, CF_3 = 17, CF_4 = 20 + 530 = 550, I = 10; CPT NPV = 410.91
    This is the firm's value. The estimated equity value = 410.91 - 200 = 210.91 million. Estimated Share Price = 210.91 million/10 million = \$21.09. Section 7.1.1.

20. B is correct. Using the mean relative valuation metrics and the estimates of the target, the estimated stock value based on comparables is:

Variables	Real Books	Comparable	Estimated Stock

		Companies	Value
Earnings per share	\$2.00	P/E = 17	\$34.00
Cash flow per share	\$4.25	P/CF = 7.50	\$31.875
Sales per share	\$16.50	P/S = 2.0	\$33.00
Mean			\$32.958 ≈ \$33

Applying 20% takeover premium to the mean value of \$33 = (33)(1.20) = \$39.60. Section 7.1.2.

21. C is correct.

CMX	Comparable Companies	Mean Multiple	Estimated Takeover Value
EPS \$3.00	P/E	15	\$45
CF/Share \$5.00	P/CF	10	\$50
BV/Share \$14.00	P/BV	3	\$42

Giving equal weights to each value estimate, the estimated takeover price = \$45.67. Section 7.1.3.

22. A is correct. P_T = price paid to SPC = €8 x 20 = €160 million. V_T = pre-merger value of SPC = €100 million; Target (SPC) shareholder's gain = P_T – V_T = 160 – 100 = €60 mil. Acquirer's (Lucid's) gain = Synergies – Premium = S – (P_T – V_T) = 100 – 60 = €40 million. Section 7.2.

23. A is correct. Hope must issue 30 million x 0.90 = 27 million shares. Post-merger value of the combined company = $V_{A'} = V_A + V_T + S - C = 1400 + 450 + 150 - 0 = \$2000\ million.$ Total number of shares = 70 + 27 = 97 million. Value of each share given to Mediland = 2000/97 = \$20.62. Total value paid to Mediland shareholders = \$20.62 x 27 mil. = \$556.74 million. Section 7.2.

24. C is correct. The form of payment depends on confidence in synergies created and the relative value of the acquirer's shares. Section 7.2.

25. C is correct. If the acquiring company is confident that estimated synergies will be realized it will be more willing to make a cash offer. Section 7.2.

26. B is correct. When the transaction premium is low, the M & A deals will earn positive returns on announcement. Section 8.

27. B is correct. A divestiture is when a company decides to sell, spin-off, or liquidate a division/subsidiary. Section 9.

28. B is correct. In a spin-off the shareholders of the parent company are given proportional stake in the newly formed separate entity. Section 9.

29. C is correct. A change in strategic focus usually prompts removing divisions that are outside its core strategic focus. Section 9.