2023 LEVEL II MOCK 1

session 2

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Questions 1-4 relate to Ethical and Professional Standards

Case 1: Suzy Mercer Case Scenario

1. Correct answer: A.

A is Correct. Ong's most appropriate response is, "I will need to touch base with my Partners." Ong has a responsibility to protect the interests of his firm and his partners, according to Standard IV: Duty to Employers. If Ong took the assignment as an individual, he would be potentially harming his firm and his fellow partners. The harm would arise by Ong potentially competing against his firm and thus depriving the firm of his time, skills, and potential source of revenue, because the partners may agree to lower their normal fees to accommodate Mercer. The lower fee could be a loss leader for future projects with the government of the developing country. In particular, if Ong took the assignment as an individual, he would be violating Standard IV(A): Loyalty, which requires charterholders to act for the benefit of their employer (in this case, the employer is Ong's firm and partners) and not deprive their employer of the advantage of their skills and abilities or otherwise cause harm to their employer. He would also be potentially violating Standard IV(B): Additional Compensation Agreements, which requires charterholders to refuse to accept additional compensation resulting from activity that competes with their employer or might reasonably be expected to create a conflict of interest. Ong would also likely be violating Standard IV: Duty to Employers if he referred another adviser to Mercer without first giving his partners the option to lower their fees. He would be eliminating a business opportunity for the firm, thus potentially harming his firm and the partners.

2. Correct answer: B.

B is Correct, because Ong least likely violated Standard I(C): Misrepresentation when stating he had a stellar reputation, since Mercer had previously noted it as one of the reasons why she was talking to him, so it is unlikely he misrepresented himself. Ong, however, did violate Standard I(A): Misconduct by maligning the reputation of Daniel Ngyue on the basis of his speculation about Ngyue's drinking and a rumor he heard. Members and candidates are not to engage in any professional conduct that reflects adversely on their integrity. He also potentially violated Standard I(B): Independence and Objectivity by stating the influential people he could introduce her to would possibly give her future assignments if they knew they were working together. Ong is trying to

influence Mercer's decision to go with his firm by implying he could possibly increase her potential future income through his contacts rather than appointing the adviser most appropriate for her current assignment.

3. Correct answer: C.

C is Correct**.** Ong should insist service providers give preference to investors when trading. By assuring investor interests are given preference or priority, the regulators would be helping to maintain capital market integrity. This would also comply with Standard IV(A): Loyalty, Prudence, and Care. Standard II(A): Material Nonpublic Information, which prohibits acting or causing others to act on material nonpublic information, and Standard II(B): Market Manipulation, which prohibits practices that distort or artificially inflate trading volumes to mislead market participants, would thus be upheld because both serve to put investors' interests first.

A is incorrect, because banning the "pumping up" of investment prices, an information-based manipulation, does not fully ensure protection of investors' interests. Transaction-based manipulation activities and the trading of material nonpublic information can also harm the interests of investors and the integrity of the capital markets. Standard II(B): Market Manipulation prohibits practices that distort or artificially inflate trading volumes to mislead market participants.

B is incorrect, because requiring the release of all material information could harm the interests of investors. Not all material information is meant for the public's knowledge. As such, releasing this type of information, for example, could cause a company to lose its competitive advantage, thus harming investors. Standard II(A): Material Nonpublic Information prohibits acting or causing others to act on material nonpublic information so as to not disadvantage investors who do not have access to the same information.

4. Correct answer: C.

C is Correct. It is apparent Ngyue revealed he had violated both Standard I: Professionalism and Standard V: Investment Analysis, Recommendations, and Actions. Specifically, he likely violated Standard I(C): Misrepresentation by making an omission when key-person risk was absent from the fund prospectus. Standard I(C): Misrepresentation requires members and candidates to not knowingly make any misrepresentations relating to investment analysis, recommendations, or

actions or other professional activities. Ngyue also violated Standard V(B): Communication with Clients and Prospective Clients in that key-person risk was not initially identified as a significant risk in the prospectus sent to investors. Standard V(B): Communication with Clients and Prospective Clients requires members and candidates to disclose to clients and prospective clients significant limitations and risks associated with the investment process. It appears Ngyue was the only manager, such that another manager needed to be found to replace him while he was recovering from his illness. This type of key-person risk should have been disclosed in the prospectus.

Questions 5-8 relate to Ethical and Professional Standards

Case 2: Terry McGuinn Case Scenario

5. Correct answer: C.

C is Correct. Forster's adoption of the CFA Code and Standards does not necessarily imply that they currently have in place proper policies and procedures to ensure compliance with the Code and Standards and local legal and regulatory requirements. According to Standard IV(C)– Responsibilities of Supervisors, if a compliance system is non-existent or if an existing compliance system is inadequate, a member should not accept supervisory responsibility until the firm adopts reasonable procedures to allow adequate exercise of supervisory responsibilities. McGuinn should thus undertake a review prior to accepting the position, ascertaining that proper policies and procedures are in place. McGuinn's authority and responsibility appear to have been clearly defined through his written terms of reference, and he was given authority to implement needed changes. McGuinn would be required, however, to supervise and coordinate the implementation through the human resources department.

A is incorrect because McGuinn's authority and responsibility appear to have been clearly defined through his written Terms of Reference and he is being given authority to implement needed changes. McGuinn would be required, however, to supervise and coordinate the implementation through the human resources department

B is incorrect because Forster's adoption of the CFA Institute Code and Standards does not necessarily imply that they currently have in place proper policies and procedures to ensure compliance with the Code and Standards and local legal and regulatory requirements.

6. Correct answer: B.

B is Correct. The RFP was done on the basis of the old organizational structure, which would have included the retired finance director. Standard I(C) requires members not to misrepresent the qualifications of a firm. With a senior professional leaving the firm, the organizational structure should be updated prior to submitting a RFP for a potential client's consideration.

A is incorrect. The mention of a minimum 5% guarantee is not a violation as it is a guaranteed product, underwritten by an investment grade insurance company.

C is incorrect. The use of third-party research services is allowable and not a violation.

7. Correct answer: A.

A is Correct. When determining whether information is considered "insider," the source of the information must be assessed as required by Standard II(A)–Material Nonpublic Information. Having an industry or trade newsletter speculate on the benefits of a merger between two companies does not necessarily mean the two companies are actually merging. The two CEOs are overheard discussing the newsletter but never provide their perspectives or opinions on the article, so the information is only related to the newsletter. Thus, the information is not considered material.

B is incorrect because an industry or trade newsletter that speculates on the benefits of a merger between two companies does not necessarily mean the two companies are actually planning on merging

C is incorrect because the newsletter is only available via subscription and is selectively disclosed, so the information contained in it could not be considered public.

8. Correct answer: A.

A is Correct. When a firm acts as a market maker, a prohibition on proprietary trading may be counterproductive to the goals of maintaining the confidentiality of information and market liquidity, as outlined in Standard II(A)–Material Nonpublic Information. In some cases, a withdrawal by the firm from market-making activities would be a clear tip to outsiders. Firms that continue market-making activity while in the possession of material nonpublic information should, however, instruct their market makers to remain passive to the market (i.e., take only the opposing side of unsolicited customer trades).

B is incorrect because regularly reviewing employee and proprietary trading is one recommendation to assess whether trades are being done on the basis of nonpublic material information.

C is incorrect because requiring all employees to attend an annual refresher course in how to identify and handle material nonpublic information is a recommendation that helps to increase awareness of insider information issues. With increased awareness, the likelihood of a violation decreases.

Questions 9-12 relate to Economics

Case 3: Luca Wagner Case Scenario

9. Correct answer: A.

A is Correct because Wagner will want to invest in the country where economic factors are least limiting. "Factors limiting growth include the following:

- Low rates of saving and investment
- Poorly developed financial markets
- Weak, or even corrupt, legal systems and failure to enforce laws
- Lack of property rights and political instability
- Poor public education and health services
- Tax and regulatory policies discouraging entrepreneurship
- Restrictions on international trade and flows of cash."

Country A 's stock market shows a higher market capitalization to GDP ratio than Country C (Country B does not have a stock exchange), Its investor rights are stronger than Country B or Cs, and there currently isn't any restrictions on foreign trade allowing a free flow of foreign capital unlike in Country B or C. While Country A's savings rate as a percentage of GDP is lower than Country C's, the other factors related to the investment environment are likely more important in that the funding will be through foreign and domestic institutional investors. Therefore, Country A appears to be the more favorable country in which to invest.

10. Correct answer: A.

A is Correct because this statement is accurate. "Infrastructure investment is an important source of productivity growth and should be included as an input in the production function. As with R&D spending, the full impact of government infrastructure investment may extend well beyond the direct benefits of the projects because improvements in the economy's infrastructure generally boost the productivity of private investments." Increasing infrastructure spending would likely benefit Wagner's intended housing project, thus benefit the investors as well.

B is incorrect because this statement is inaccurate. "In the long run, real earnings growth cannot exceed the growth rate of potential GDP." "For earnings growth to exceed GDP growth, the ratio of

corporate profits to GDP must trend upward over time. It should be clear that the share of profits in GDP cannot rise forever."

C is incorrect because this statement is not accurate. "Simply extrapolating past GDP growth in the future may produce an incorrect forecast. A country's GDP growth rate can and does change over time. GDP growth can either slow down, as was the case for Japan (the pre-1990 growth rate is much higher than the post-1990 rate), or speed up, as was the case for Brazil for more than a decade after 1999. Factors or policies that cause potential growth to increase or decrease by even a small amount will have a large impact on living standards and the future level of economic activity." Given the information about improving economic factors, the future GDP growth rate over the long term may accelerate at a faster rate.

11. Correct answer: C.

C is Correct because the CEO's statement, "With access to this technology, we expect each of our country's per capita income growth rates to catch up to developed countries over time." correctly reflects absolute convergence. "Absolute convergence means that developing countries, regardless of their particular characteristics, will eventually catch up with the developed countries and match them in per capita output. The neoclassical model assumes that all countries have access to the same technology. As a result, per capita income in all countries should eventually grow at the same rate. Thus, the model implies convergence of per capita growth rates among all countries. It does not, however, imply that the level of per capita income will be the same in all countries regardless of underlying characteristics; that is, it does not imply absolute convergence."

A and B are incorrect because the CEO's statement, "We should eventually also get to the same per capita income levels as developed countries" does not correctly reflect absolute convergence. Absolute convergence "does not, however, imply that the level of per capita income will be the same in all countries regardless of underlying characteristics; that is, it does not imply absolute convergence." "Absolute convergence means that developing countries, regardless of their particular characteristics, will eventually catch up with the developed countries and match them in per capita output. The neoclassical model assumes that all countries have access to the same technology. As a result, per capita income in all countries should eventually grow at the same rate. Thus, the model implies convergence of per capita growth rates among all countries.

12. Correct answer: C.

C is Correct because according to the neoclassical model, "because of the capital inflows, the physical capital stock in the developing countries should grow more rapidly than in rich countries even if the saving rate is low in the poorer countries. Faster capital growth will result in higher productivity growth, causing per capita incomes to converge.

A is incorrect because under the neoclassical model, "global savers, seeking higher returns on investments, will invest in the capital-poor countries. In an open economy, capital should flow from countries with high capital-to-labor ratios to those that are capital poor. As more and more foreign capital flows into the country, potentially as a result of Wagner's successful investment, global savers may actually slow their investment levels into the country.

B is incorrect because endogenous growth models, not the neoclassical model, predict that a selection effect will take hold, "whereby increased competition from foreign companies forces less efficient domestic companies to exit the industry."

Questions 13-16 relate to Financial Statement Analysis

Case 4: Ione Bailey Case Scenario

13. Correct answer: B.

B is Correct because financial leverage can be determined from the information provided as follows:

	Formula	Most recent year	Previous year	Two years ago
Total assets	Revenues/Total asset turnover	750/1.30 = 576.92	680/1.25 = 544	600/1.2 = 500
Total shareholders' equity	Total assets – Total liabilities	576.92 – 230 = 346.92	544 – 220 = 324	500 – 200 = 300
Financial leverage	Total assets/Total shareholders' equity	576.92/346.92 = 1.663	544/324=1.679	500/300 = 1.667

14. Correct answer: B.

B is Correct because the ratio of the total capital expenditures % to the total assets % measures segment business growth. "A ratio of less than 1 indicates that the segment is being allocated a lesser proportion of capital expenditures than its proportion of total assets; if a trend develops, the segment will become less significant over time. A ratio of greater than 1 indicates the company is growing the segment; the segment is receiving a 'growth allocation' of capital spending."

Accordingly, the segment growth evaluation is as follows:

Europe: 32.2% ÷ 26.5% = 1.215

Asia: 29.1% ÷ 31.2% = 0.933

Americas: 38.7% ÷ 42.3% = 0.915

Accordingly, Europe is the geographic segment that is growing fastest.

A is incorrect because Europe is growing fastest. In the most recent year, the Asia segment has the highest EBIT margin % but growth should be measured using capital expenditures % to total asset %.

C is incorrect because Europe is growing fastest. The Americas segment has the highest total capital expenditure % as well as the highest total assets % but growth should be measured using capital expenditures % to total asset %.

15. Correct answer: A.

A is Correct because the debt-to-equity ratio (Total debt ÷ Total shareholders' equity) will increase. Net income and therefore shareholders' equity will decrease after Bailey makes the adjustment for a greater amount of depreciation expense. There is no effect on total debt.

B is incorrect because book value per share (Common shareholders' equity ÷ Total number of common shares outstanding) will decrease. Net income and therefore shareholders' equity will decrease after Bailey makes the adjustment for a greater amount of depreciation expense. There is no effect on the total number of common shares outstanding.

C is incorrect because the operating profit margin (Operating profit ÷ Total revenues) will decrease after Bailey makes the adjustment to record a greater amount of depreciation expense to make Eastview more comparable with its competitors. Operating profit will be reduced. There is no effect on total revenues.

16. Correct answer: C.

C is Correct because the absolute value (that is, negative direction signs are to be assessed in the same manner as positive direction signs) percentage trend of the balance-sheet-based accruals ratio is increasing over the 3-year period. "The analyst would have been more concerned if the absolute levels of the accruals ratio were high; even more worrisome would have been if they were consistently trending higher." Accordingly, the trend indicates a higher departure from zero and therefore a deterioration in earnings quality.

A is incorrect because the balance-sheet-based accruals ratio is deteriorating and trending higher (since it is based on the absolute percentage value).

B is incorrect because the balance-sheet-based accruals ratio is trending higher (since it is based on the absolute percentage value).

Questions 17-20 relate to Corporate Issuers

Case 5: Michael Thornhill Case Scenario

17. Correct answer: C.

C is Correct because a liquidating dividend arises when a company "sells a portion of its business for cash and the proceeds are distributed to shareholders". In this case, AAPS sold a division and distributed a portion of the proceeds back to shareholders and the one-time $0.95/share dividend is a liquidating dividend.

A is incorrect because "[w]ith a stock dividend (also known as a bonus issue of shares or a scrip dividend), the company distributes additional shares... of its common stock to shareholders instead of cash." AAPS sold a division and distributed a portion of the proceeds back to shareholders and the one-time $0.95/share dividend is a liquidating dividend.

B is incorrect because a special dividend "is either a dividend paid by a company that does not pay dividends on a regular schedule or a dividend that supplements regular cash dividends with an extra payment." AAPS pays dividends and the one-time $0.95/shrae dividend is in relation to the brake parts division which is a liquidating dividend.

18. Correct answer: B.

B is Correct. For a stock dividend, "[t]he total market value of the company is unaffected by the stock dividend because the decrease in the share price is exactly offset by the increase in the number of shares outstanding." The total cost basis of the shares remains the same; however, the number of shares owned increases.

Assuming a shareholder owns 100 shares.

Total value = $989.00 [$9.89 x 100]

With a 4.0% stock dividend, the number of shares would increase to 104.

The new share price = Total value / new number of shares

= $989.00 / 104

= $9.51

A is incorrect because it assumes the 4% stock divided reduces the stock price by 4%

= $9.89 x (1 – 0.04) = $9.49

C is incorrect because it multiplies the current share price with the expected stock dividend growth

= $9.89 × (1 + 0.04)

= $10.29

19. Correct answer: C.

C is Correct. Flotation costs are the costs associated with selling shares to the public that would include underwriters' fees, legal costs, registration expenses, and possible negative price effects and would be lower with a direct stock dividend to existing owners. "...the company did not have to spend any actual money issuing a dividend."

A is incorrect because a stock dividend is "generally not taxable to shareholders because a stock dividend merely divides the "pie" (the market value of shareholders' equity) into smaller pieces."

B is incorrect because "a stock dividend has no economic impact on a company... Stock dividends... do not affect assets or shareholders' equity. Although retained earnings are reduced by the value of the stock dividends paid (i.e., by the number of shares issued × price per share), contributed capital increases by the same amount (i.e., the value of the shares issued). As a result, total shareholders' equity does not change. Neither stock dividends nor stock splits... affect liquidity ratios or financial leverage ratios."

20. Correct answer: A.

A is Correct because in a greenmail transaction, the company buys back the would-be suitor's shares at a premium to the market price, not at a discount. "[U]nsuccessful takeover attempts have ended with the company buying back the would-be suitor's shares at a premium to the market price, referred to as a greenmail transaction, often to the detriment of remaining shareholders."

B is incorrect because it is an accurate statement. A fixed price tender offer can be extended to all shareholders and can set at a fixed date in the near future. "[A] company will make a fixed price tender offer to repurchase a specific number of shares at a fixed price that is typically at a premium to the current market price... By setting a fixed date, such as 30 days in the future, a fixed price tender offer can be accomplished quickly."

C is incorrect because it is an accurate statement. "The open market share repurchase method gives the company maximum flexibility. Open market repurchases are the most flexible option for a company because there is no legal obligation to undertake or complete the repurchase program; a

company may not follow through with an announced program for various reasons, such as unexpected cash needs for liquidity, acquisitions, or capital expenditures."

Questions 21-24 relate to Equity Valuation

Case 6: Emily Zylkin Case Scenario

21. Correct answer: C.

C is Correct because efficiency in the use of assets and employees to reduce costs in all consumer segments is an example of a "cost leadership" strategy.

A is incorrect because focus describes a strategy towards a targeted segment of consumers that can follow either a cost leadership or differentiation strategy within the given segment. The more successful strategy does not separate the consumers into segments with differing strategies.

B is incorrect because differentiation describes the less preferred strategy of tailoring products and marketing toward a particular consumer. The more successful strategy with efficiency in the use of assets and employees to reduce costs in all consumer segments is an example of a "cost leadership" strategy.

"In general, a company's value is higher to the extent that it can create and sustain an advantage relative to its competition. Porter identifies several generic corporate strategies for achieving above-average performance:

i. Cost leadership—being the lowest cost producer while offering products comparable to those of other companies so that products can be priced at or near the industry average

ii. Differentiation—offering unique products or services along some dimensions that are widely valued by buyers so that the company can command premium prices

iii. Focus—seeking a competitive advantage within a target segment or segments of the industry based on either cost leadership (cost focus) or differentiation (differentiation focus)"

22. Correct answer: B.

B is Correct because the going-concern value of a company is "its value under a going-concern assumption" and "going-concern assumption is the assumption that the company will continue its business activities into the foreseeable future." The liquidation value is "[a]n alternative to a company's going-concern value is its value if it were dissolved and its assets sold individually." The going-concern value is less than the liquidation value causing the short selling strategy.

A is incorrect because the going-concern value is less than the liquidation value causing the short selling strategy. The intrinsic value is not considered in the decision to sell short.

C is incorrect because the orderly liquidation value is the value of assets sold "during a longer period of time (i.e., in an "orderly" fashion)" which is higher than the liquidation value. The going-concern value is less than the liquidation value causing the short selling strategy.

23. Correct answer: C.

C is Correct because solving for a valuation model parameter based on market information is an example of inferring a market expectation. Inferring a market expectation "evaluate[s] the reasonableness of the expectations implied by the market price by comparing the market's implied expectations to ... own expectations" and "[t]he market's expectations for a fundamental characteristic of one company may be useful as a benchmark or comparison value of the same characteristic for another company."

A is incorrect because a sensitivity analysis is when a model parameter is changed to assess its influence on the valuation determined by the model. "In a sensitivity analysis, the manager can choose which variables to change and by how much" to determine the effect on the valuation. The technique Zylkin states does not involve changing input variables.

B is incorrect because a catalyst is "a particular market or corporate event ... that will cause the marketplace to re-evaluate a company's prospects." The technique Zylkin states does not involve looking for a catalyst.

24. Correct answer: A.

A is Correct because for the purpose of pairs trading, the comparison of companies based on their P/E ratios is a relative valuation type of analysis. "A relative valuation model estimates an asset's value relative to that of another asset. The idea underlying relative valuation is that similar assets should sell at similar prices. Relative valuation is typically implemented using price multiples" and "[a] stock selling at a P/E that is low relative to the P/E of another closely comparable stock ... is relatively undervalued ... relative to the comparison stock."

B is incorrect because the use of company level data is indicative of a bottom-up analysis, not top-down analysis. "[A] top-down forecasting approach moves from international and national macroeconomic forecasts to industry forecasts and then to individual company and asset forecasts."

"[A] bottom-up forecasting approach aggregates forecasts at a micro level to larger scale forecasts, under specific assumptions."

C is incorrect because a sum-of-the-parts valuation "sums the estimated values of each of the company’s businesses as if each business were an independent going concern" and it is most useful when "valuing a company with segments in different industries that have different valuation characteristics." There is no indication of this type of valuation process.

Questions 25-28 relate to Equity Valuation

Case 7: Ryan Ahmed Case Scenario

25. Correct answer: A.

A is Correct because the intrinsic value (V0) calculated based on a single-stage residual income model is:

V0 = B0 + B0 x (ROE – r) / (r – g)

Where B0 = Book value per share

r = cost of equity

g = long-term growth

Therefore, for Paramount Industries,

V0 = MYR 60 + MYR 60 x (10% – 7%) / (7% – 3%)

V0 = MYR 105.

Ahmed considers a stock to be fairly valued if its current share price is within 2.5% of its model value, which based on the above gives a range of MYR 102.375 to 107.625. The current share price of MYR 86 is lower than the lower end of the price range at which the stock would be fairly valued. Therefore, the stock is undervalued.

B is incorrect because the candidate wrongly calculates the intrinsic value as: Book value + Book value x (ROE – r) / (ROE – g) = MYR 60 + MYR 60 x (10% – 7%) / (10% – 3%) = MYR 85.71.

Ahmed considers a stock to be fairly valued if its current share price is within 2.5% of its model value, which based on the above gives a range of MYR 83.57 to 87.86. The current share price of MYR 86 is in the price range at which the stock would be fairly valued.

C is incorrect because the candidate wrongly calculates the intrinsic value as: Book value x (ROE – r) / (ROE – g) = MYR 60 x (10% – 7%) / (10% – 3%) = MYR 25.71, which is much lower than the current share price of MYR 86 for the stock to be considered overvalued.

26. Correct answer: B.

B is Correct because the market value added of Paramount Industries is:

= Market value of the company – Book value of total capital of the company

= (Market value of equity + Market value of debt) – (Book value of equity + Book value of debt)

= (MYR 86 x 10 million + MYR 690 million) – (MYR 60 x 10 million + MYR 600 million)

= MYR 1,550 million – MYR 1,200 million

= MYR 350 million.

A is incorrect because the candidate uses only equity in the calculation and does not incorporate debt values:

Market value of equity – Book value of equity

= (MYR 86 x 10 million – MYR 60 x 10 million)

= MYR 260 million.

C is incorrect because the book value of equity has been subtracted from the intrinsic value of equity based on the single-state RI model:

Intrinsic value of equity – Book value of equity

= (MYR 105 x 10 million – MYR 60 x 10 million)

= MYR 450 million

Where intrinsic value is: BV + BV x (ROE – r) / (r – g). In this case, intrinsic value = MYR 60 + MYR 60 x (0.10 – 0.07) / (0.07 – 0.03) = MYR 60 + MYR 45 = MYR 105.

27. Correct answer: A.

A is Correct because the intrinsic value of the stock using a multistage model is:

Book value of the stock + PV of Residual Income (RI) during the forecast period + PV of RI after the forecast period

= MYR 58 + MYR 10.16 + MYR 13.73

= MYR 81.89

≈ MYR 82.

PV of RI during the forecast period = RI of Year 1 / (1 + Required rate of return) + RI of Year 2 / $(1 + \text{Required rate of return})^2$ + RI of Year 3 / $(1 + \text{Required rate of return})^3$ + RI of Year 4 / $(1 + \text{Required rate of return})^4$ = MYR 3 / 1.07 + MYR 3 / $(1.07)^2$ + MYR 3 / $(1.07)^3$ + MYR 3 / $(1.07)^4$ = MYR 10.16.

The residual income after the forecast period is: Expected market value after the forecast period – Book value after the forecast period = MYR 108 – MYR 90 = MYR 18.

The PV of Residual Income after the forecast period: MYR 18 / $(1.07)^4$ = MYR 13.73.

B is incorrect because the candidate did not discount the residual income after the forecast period. The candidate calculates the intrinsic value as:

Book value of the stock + PV of Residual Income during the forecast period + Residual Income after the forecast period

= MYR 58 + MYR 10.16 + MYR 18

= MYR 86.16

≈ MYR 86.

PV of RI during the forecast period = RI of Year 1 / (1 + Required rate of return) + RI of Year 2 / (1 + Required rate of return)^2 + RI of Year 3 / (1 + Required rate of return)^3 + RI of Year 4 / (1 + Required rate of return)^4 = MYR 3 / 1.07 + MYR 3 / (1.07)^2 + MYR 3 / (1.07)^3 + MYR 3 / (1.07)^4 = MYR 10.16.

The residual income after the forecast period is: Expected market value after the forecast period – Book value after the forecast period = MYR 108 – MYR 90 = MYR 18.

C is incorrect because the candidate ignores the current book value, and instead of using the present value of the residual income after the forecast period, calculates the intrinsic value as: PV of Residual Income during the forecast period + Present value of expected market value after the forecast period

= MYR 10.16 + MYR 82.39

= MYR 92.55

≈ MYR 93.

PV of RI during the forecast period = RI of Year 1 / (1 + Required rate of return) + RI of Year 2 / (1 + Required rate of return)^2 + RI of Year 3 / (1 + Required rate of return)^3 + RI of Year 4 / (1 + Required rate of return)^4 = MYR 3 / 1.07 + MYR 3 / (1.07)^2 + MYR 3 / (1.07)^3 + MYR 3 / (1.07)^4 = MYR 10.16.

The present value of expected market value after the forecast period: The expected market value after the forecast period / (1 + Required rate of return)^4 = MYR 108 / (1.07)^4 = MYR 82.39.

28. Correct answer: A.

A is Correct because "[t]o have a reliable measure of book value of equity . . . reported assets and liabilities should be adjusted to fair value when possible." Adjustment 1, whereby assets and

liabilities are changed to reflect their fair values, will have driven a change in the book value per share.

B is incorrect because "[o]perating leases do not affect the amount of equity (because leases involve off-balance-sheet assets that offset the off-balance-sheet liabilities) but can affect an assessment of future earnings for the residual income component of value." Therefore, Adjustment 2, whereby operating leases are included in assets and liabilities, will not have driven a change in the book value per share.

C is incorrect because "[i]n applying a residual income model, it is important to develop a forecast of future residual income based on recurring items... No adjustments to book value are necessary for these items, however, because non-recurring gains and losses are reflected in the value of assets in place." Therefore, Adjustment 3 will not have driven a change in the book value per share.

Questions 29-32 relate to Fixed income

Case 8: Olivia Ponce Case Scenario

29. Correct answer: C.

C is Correct because Security 2 is mispriced, being cheap relative to Security 1. A spot rate discount factor is derived from Security 1 as 97.42/100 = 0.9742. Discounting Security 2 cash flows at maturity by the Security 1 discount rate provides the arbitrage-free market price for Security 2 of, 12 x 100 x 0.9742 = 1,169.04, where 1,169.04/12 = 97.42, which is the price of Security 1. Since the market price of Security 2 is 1,152.25, a portfolio manager could sell 12 units of Security 1 for 1,169.04 and buy 1 unit of Security 2 for 1,152.25 netting an immediate positive cash flow of 16.79. Value additivity refers to an arbitrage opportunity where the value of the whole must equal the sum of the parts as in this case.

A is incorrect because there is an arbitrage opportunity as Security 2 is cheap relative to Security 1. A spot rate discount factor is derived from Security 1 as 97.42/100 = 0.9742. Discounting Security 2 cash flows at maturity by the Security 1 discount rate provides the arbitrage-free market price for Security 2 of, 12 x 100 x 0.9742 = 1,169.04, where 1,169.04/12 = 97.42, which is the price of Security 1. Since the market price of Security 2 is 1,152.25, a portfolio manager could sell 12 units of Security 1 for 1,169.04 and buy 1 unit of Security 2 for 1,152.25 netting an immediate positive cash flow of 16.79. At maturity proceeds from 1 unit of Security 2 equals payment for 12 units of Security 1.

B is incorrect because Security 2 is mispriced, being cheap relative to Security 1 providing a value additivity not dominance opportunity. Value additivity refers to an arbitrage opportunity where the value of the whole must equal the sum of the parts as in this case. Dominance refers to an arbitrage opportunity where the price today for two assets are equal but a positive risk-free payoff at maturity from a long and short position in the two securities makes one cheap relative to another.

30. Correct answer: A.

A is Correct because the interest rate to use in discounting bond cash flows is the spot rate (zero-coupon rate). Exhibit 1 provides par rates and forward rates. The spot rate curve can be derived from either curve. Referencing the par curve, use bootstrapping which is an iterative process to find the year 2 and then year 3 spot rates as follows: $1 = \text{Par rate}/(1+z1) + \text{Par rate}/(1+z2)^2 + \text{Par rate} +$

$1/(1+z3)^3$. The Year 1 spot rate is 1.50%. The Year 2 spot rate = 1= 0.025/(1+0.015) + $1.025/(1+z2)^2$ = 2.513%. The Year 3 spot rate = 1 = 0.035/(1+0.015) + $0.035/(1+0.02513)^2$ + $1.035/(1+z3)^3$ = 3.548%. The price of the bond = 2/(1.015) + $2/(1.02513)^2$ + $102/(1.03548)^3$ = 95.7438.

B is incorrect because it uses the par curve to discount the cash flows, the spot curve is derived from the par curve. The calculation using the par curve = 2/1.0150 + $2/(1.0250)^2$ + $102/(1.0350)^3$ = 1.9704 + 1.9037 + 91.9982 = 95.87

C is incorrect because it uses the yield-to-maturity from the comparable bond which had a different coupon to discount the cash flows. YTM does not produce the arbitrage-free valuation if the cash flows are different and the yield curve is not flat. Calculation using YTM = 2/1.0338 + $2/(1.0338)^2$ + $102/(1.0338)^3$ = 1.9347 + 1.8715 + 92.3274 = 96.13

31. Correct answer: B.

B is Correct since the model uses a lognormal distribution, analysis of the German bund will be impacted. "One of the characteristics of a lognormal distribution is that negative rates are not possible, since as rates approach zero, the absolute change in interest rates becomes smaller and smaller."

A is incorrect since Characteristic 1 accurately describes a binomial interest rate tree framework. "An interest rate tree is simply a visual representation of the possible values of interest rates based on an interest rate model and an assumption about interest rate volatility."

C is incorrect since Characteristic 3 accurately describes the use of volatilities in a binomial interest rate tree framework. "There are two methods commonly used to estimate interest rate volatility. The first method uses historical interest rate volatility based on data from the recent past, which is assumed to be indicative of the future. A second method to estimate interest rate volatility is that derived from observed market prices of interest rate derivatives (e.g., swaptions, caps, floors) known as implied volatility."

32. Correct answer: B.

B is Correct because pathwise valuation involves three key steps. First, specify a list of all potential paths as depicted in Exhibit 2. Second, determine the present value of a bond along each path.

Third, calculate the average across all possible paths. The cash flows across all four paths are 1 in Time 1 and Time 2 and 101 in Time 3. The value of Security 5 is calculated as:

Path 1 value: 1/1.010375 + 1/(1.010375 * 1.01494) + 101/(1.010375 * 1.01494 * 1.01673) = 0.989732 + 0.975163 + 96.870508 = 98.8354

Path 2 value: 1/1.010375 + 1/(1.010375 * 1.01494) + 101/(1.010375 * 1.01494 * 1.01394) = 0.989732 + 0.975163 + 97.136946 = 99.1018

Path 3 value: 1/1.010375 + 1/(1.010375 * 1.01245) + 101/(1.010375 * 1. 01245* 1.01394) = 0.989732 + 0.977561 + 97.375842 = 99.3431

Path 4 value: 1/1.010375 + 1/(1.010375 * 1.01245) + 101/(1.010375 * 1. 01245* 1.00984) = 0.989732 + 0.977561 + 97.772014 = 99.7393

Average = (98.8354 + 99.1018 + 99.3431 + 99.7393)/4 = 99.254

A is incorrect because the calculation omitted all coupons, calculating the value of Security 5 as:

Paths, 1,2, and 3 were given.

Path 4 value: 100/(1.010375 * 1.01245* 1.00984) = 96.8040

Average = (98.8354 + 99.1018 + 99.3431 + 96.8040)/4 = 96.325

C is incorrect because the model used only the forward rate for the period in which the cash flow occurs for Path 4:

Paths, 1,2, and 3 were given.

Path 4 value: 1/1.010375 + 1/(1.01245)2 + 101/(1.00984)3 = 0.9897 + 0.9756 + 98.0775 = 100.0428

Average = (98.8354 + 99.1018 + 99.3431 + 100.0428)/4 = 99.330

Questions 33-36 relate to Fixed income

Case 9: Marcos Pereira Case Scenario

33. Correct answer: A.

A is Correct because entering into CDS 1 and 2 together constitute a curve trade, which "involves buying single-name or index protection at one maturity and selling protection in the same reference entity at a different maturity." "A steeper curve means that long-term credit risk increases relative to short term credit risk. An investor who believes that long-term credit risk will increase relative to short-term credit risk (credit curve steepening) can buy protection by buying a long-term single-name CDS...and sell protection by selling a short-term single-name CDS." On the other hand, a flatter curve means that long-term credit risk decreases relative to short term credit risk. An investor who believes that long-term credit risk will decrease relative to short-term credit risk (credit curve flattening) can sell protection by selling a long-term single-name CDS...and buy protection by buying a short-term single-name CDS. This is the case of the curve trade entered into by Tundra. Therefore, its view about the reference entity's credit curve was that it would flatten.

B is incorrect because, as explained in the rationale for the correct answer, with CDS 1 and 2, Tundra entered into a curve trade expecting that the reference entity's credit curve would flatten, not remain unchanged.

C is incorrect because, as explained in the rationale for the correct answer, with CDS 1 and 2, Tundra entered into a curve trade expecting that the reference entity's credit curve would flatten, not steepen.

34. Correct answer: B.

B is Correct because if Tundra closes the position it will create a monetized loss and require Tundra to pay a premium.

A and C are incorrect because Tundra will pay an upfront premium and monetize a gain.

35. Correct answer: A.

A is Correct because the probability of default of the entity in the next 2 years is computed as:

Probability of default = 1 – Probability of Survival in the next 2 years

whereas,

Probability of survival in the next 2 years = (1 – hazard rate year 1) x (1 – hazard rate year 2)

Probability of survival in the next 2 years = (1 – 1.35%) x (1 – 2.35%) = 96.33%

Therefore,

Probability of default = 1 – 96.33% = 3.67%

B is incorrect because it incorrectly computes the probability of default of the entity in the next 2 years as the sum of the two hazard rates:

Probability of default = 1.35% + 2.35% = 3.70%

C is incorrect because it incorrectly computes the probability of default of the entity in the next 2 years as:

Probability of default = [(1 +1.35%) x (1+ 2.35%) - 1] = 3.73%

36. Correct answer: B.

B is Correct because the credit spread situation provide an opportunity for a basis trade. Per the reading, "[t]he general idea behind most basis trades is that any such mispricing is likely to be temporary and the spreads [in the bond and the CDS markets] should return to equivalence when the market recognizes the disparity. For example, suppose the bond market implies a [4.5]% credit risk premium whereas the CDS market implies a [4.0]% credit risk premium. The trader does not know which is correct but believes these two rates will eventually converge. From the perspective of the CDS, its risk premium is too low relative to the bond credit risk premium. From the perspective of the bond, its risk premium is too high relative to the CDS market, which means its price is too low. So, the CDS market could be pricing in too little credit risk, and/or the bond market could be pricing in too much credit risk. Either market could be correct, it does not matter. The investor would buy the bond at a price that appears to overestimate its credit risk, and, at the same time, buy credit protection at what appears to be an unjustifiably low premium... If the convergence occurs, the trade would capture the [0.5]% differential in the two markets."

A and C are incorrect because as explained in the rationale for the correct answer Tundra should buy bonds and buy credit protection.

Questions 37-40 relate to Derivatives

Case 10: Mafadi Case Scenario

37. Correct answer: B.

B is Correct. Fourie's second comment to Jacob regarding marking to market is incorrect. Futures contracts are marked to market each day, whereas forward contracts are not. Comments 1 and 3 are accurate.

A is incorrect. Fourie's first comment is accurate. Because futures contracts are marked to market daily, profits are paid out and the value is reset to zero. As a result if you are long a contract and the price has risen, the forward contract will likely have a higher value than the futures contract.

C is incorrect. Fourie's last comment is accurate. The market value of both futures and forward contracts at initiation is zero.

38. Correct answer: B.

B is Correct. Fourie's fundamental rules for arbitrageurs are correct. The two fundamental rules of the arbitrageur are (a) do not use your own money and (b) do not take any price risk. The arbitrageur does not spend proceeds from short selling transactions but invests them at the risk-free rate. The arbitrageur does not take market price risk, even though each step of the transaction may individually involve price risk. Because the steps are undertaken simultaneously, however, the price risk is offset.

A is incorrect. The arbitrageur does not use their own money. Also, they do not spend proceeds from short selling transactions but invests them at the risk-free rate.

C is incorrect. The arbitrageur does not take market price risk but component transactions may individually involve price risk.

39. Correct answer: C.

C is Correct.

Calculate the sum of PV = 0.9802 + 0.9560 + 0.9311 = 2.8673.

Calculate the fixed swap rate = (1 – 0.9311)/2.8673 = 0.0240.

Calculate swap value per ZAR = (0.0300 – 0.0240) 2.8673 = 0.0172.

Thus, total swap value = 0.01720 × ZAR20,000,000 = ZAR344,076.

A is incorrect. A does not subtract Fixed Swap rate in step 3 so = (0.0300) × 2.8673 = 0.0860 × 20,000,000 = 1,720,380.

B is incorrect. B uses wrong PV factor for Fixed swap rate (1 – 0.9311)/2.8673 = 0.6905 = (0.0300 – 0.006905) × 2.8673 = 0.066219 × 20,000,000 = 1,324,380.

40. Correct answer: A.

A is Correct. The quarterly interest rate is calculated as [(1 + 3.2%)(1/4)] – 1 = 0.0079, so the fixed cash flow Ndlovu receives is ZAR5,000,000 × 0.0079 = ZAR39,528.77. The return of the equity is negative, so Ndlovu will also receive ZAR5,000,000 × 0.0360 = ZAR180,000.00 from the Zulu return. Therefore, the net cash flow to Ndlovu is ZAR219,528.77 (39,528.77 + 180,000.00).

B is incorrect. This answer results from subtracting the ZAR180,000 equity related return instead of adding it.

C is incorrect. This answer results from using the annual fixed rate of 0.0320 for the quarter resulting in a fixed payment of ZAR160,000 plus the equity returns of ZAR180,000.

Questions 41-44 relate to Portfolio Management

Case 11: Steven Smith Case Scenario

41. Correct answer: A.

A is Correct because the value added from asset allocation is equal to the sum of the differences in the weights between the strategic allocation and the actual portfolio allocation (Δw) multiplied by the respective benchmark return (R_B).

$R_A = (\Delta w_{equity} R_{B,equity} + \Delta w_{fixed\ income} R_{B,fixed\ income})$

$R_A = (50\% - 60\%)(0.14) + (50\% - 40\%)(0.06) = -0.014 + 0.006 = -0.008 = -0.8\%$.

B is incorrect because this is the value added from both security selection and asset allocation. Portfolio return = $(0.17 \times 0.5) + (0.04 \times 0.5) = 0.085 + 0.02 = 0.105 = 10.5\%$.

Benchmark return = $(0.14 \times 0.6) + (0.06 \times 0.4) = 0.084 + 0.024 = 0.108 = 10.8\%$.

$10.5\% - 10.8\% = -0.3\%$.

C is incorrect because the value added from security selection is equal to

$R_A = R_P - R_B$, where R_P is the portfolio return, R_B is the benchmark return, and R_A is the value added over the benchmark.

$R_A = 0.5(17\% - 14\%) + 0.5(4\% - 6\%) = 0.5\%$.

42. Correct answer: B.

B is Correct because both the Sharpe ratio and the information ratio would be impacted by the volatility of returns of the portfolio.

Sharpe ratio - "The Sharpe ratio is used to compare the portfolio return in excess of a riskless rate with the volatility of the portfolio return." $SR_P = (R_P - R_F)/\sigma_P$, where R_P = Portfolio return, R_F = the risk free rate, and σ_P = the standard deviation of the portfolio,

Information ratio - "The information ratio of an actively managed portfolio ... is calculated by dividing the active return by active risk," where active risk is the standard deviation (volatility) of the excess return of the portfolio over the return of the benchmark.

A is incorrect because, while the information ratio would be impacted by the choice of underlying benchmark, the Sharpe ratio would not be.

The Sharpe ratio (SR_P) does not factor in benchmark returns or risk. $SR_P = (R_P - R_F)/\sigma_P$, where R_P = Portfolio return, R_F = the risk free rate, and σ_P = the standard deviation of the portfolio.

"The information ratio of an actively managed portfolio ... is calculated by dividing the active return by active risk" and therefore, as active return and active risk are calculated using benchmark return and benchmark risk, the information ratio would be impacted by the choice of underlying benchmark.

C is incorrect because, while the information ratio would be impacted by the degree of leverage in the portfolio, the Sharpe ratio would not be.

Sharpe ratio - "An important property is that the Sharpe ratio is unaffected by the addition of cash or leverage in a portfolio."

Information ratio - "Unlike the Sharpe ratio, the information ratio is affected by the addition of cash or the use of leverage. For example, if the investor adds cash to a portfolio of risky assets, the information ratio for the combined portfolio will generally shrink."

43. Correct answer: B.

B is Correct because the information ratio (IR) is the active return / the active risk. The IR for each manager is as follows:

Manager 1 = 9.4/17.3 = 0.5434

Manager 2 = 8.8/15.4 = 0.5714

Manager 3 = 8.2/14.9 = 0.5503.

Thus, Manager 2 has the highest information ratio.

A is incorrect because the information ratio (IR) is the active return / the active risk. The candidate may choose Manager 1 if they multiply the active return by the Sharpe ratio:

Manager 1 = 9.4% × 0.63 = 5.92%

Manager 2 = 8.8% × 0.51 = 4.49%

Manager 3 = 8.2% × 0.70 = 5.74%.

The candidate might also choose this if they invert the IR calculation (active risk/active return):

Manager 1 = 17.3/9.4 = 1.84

Manager 2 = 15.4/8.8 = 1.75

Manager 3 = 14.9/8.2 = 1.82.

C is incorrect because the information ratio (IR) is the active return / the active risk. In this case, the candidate might choose Manager 3 because they have the lowest active risk and the highest Sharpe ratio.

44. Correct answer: C.

C is Correct because "[a] low TC results from the formal or informal constraints imposed on the structure of the portfolio. In fact, at TC = 0.00, there would be no correspondence between the active return forecasts and active weights taken and thus no expectation of value added from active management. In contrast, TC = 1.00 (no binding constraints) represents a perfect correspondence between active weights taken and forecasted active returns." Since Manager 3 has the highest transfer coefficient, they most likely have the fewest portfolio constraints.

A is incorrect because Manager 1 does not have the highest transfer coefficient. A candidate may choose Manager 1 because they multiply the information coefficient and the transfer coefficient.

Manager 1 = 0.57 x 0.7 = 0.40

Manager 2 = 0.68 x 0.2 = 0.14

Manager 3 = 0.28 x 1.0 = 0.28

B is incorrect because Manager 2 does not have the highest transfer coefficient. Manager 2 has the highest information coefficient rather than transfer coefficient. A candidate may confuse the two factors.