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NAME: _____ NUMBER: _____

Multiple-Choice Questions:

Each correct multiple-choice answer is worth +1.25 points.

Each incorrect multiple-choice answer penalizes -0.10 points.

No answer in a multiple-choice question is worth zero.

Anyone who engages in any misconduct during the exam may be dismissed from the exam (voiding exam results) and subject to other penalties.

This individual assignment uses the same structure as CFA Level I exam for questions 1 to 10 and CFA Level II exam for questions 11 to 16 (vignette).

Answers sheet:

For each answer, fill in marks like this ⬤ , not like this ⊗ ✓ ⊘

1.	Ⓐ Ⓑ Ⓒ Ⓓ	9.	Ⓐ Ⓑ Ⓒ Ⓓ
2.	Ⓐ Ⓑ Ⓒ Ⓓ	10.	Ⓐ Ⓑ Ⓒ Ⓓ
3.	Ⓐ Ⓑ Ⓒ Ⓓ	11.	Ⓐ Ⓑ Ⓒ Ⓓ
4.	Ⓐ Ⓑ Ⓒ Ⓓ	12.	Ⓐ Ⓑ Ⓒ Ⓓ
5.	Ⓐ Ⓑ Ⓒ Ⓓ	13.	Ⓐ Ⓑ Ⓒ Ⓓ
6.	Ⓐ Ⓑ Ⓒ Ⓓ	14.	Ⓐ Ⓑ Ⓒ Ⓓ
7.	Ⓐ Ⓑ Ⓒ Ⓓ	15.	Ⓐ Ⓑ Ⓒ Ⓓ
8.	Ⓐ Ⓑ Ⓒ Ⓓ	16.	Ⓐ Ⓑ Ⓒ Ⓓ

1) A market structure with some or considerable pricing power of firms of a homogeneous or standardized product is *best described* as:

      A. monopolistic competition.

      B. oligopoly.

      C. perfect competition.

Solution: B is correct.

A is incorrect because monopolistic competition is characterized by differentiated products.

C is incorrect because firms in perfect competition have no pricing power.

2) The unemployment rate is *most likely* considered a lagging indicator because:

      A. new job types must be defined to count their workers.

      B. multiworker households change jobs at a slower pace.

      C. businesses are slow to hire and fire due to related costs.

Solution: C is correct. This effect makes unemployment rise more slowly as recessions start and fall more slowly as recoveries begin.

3) An economic peak is *most closely* associated with:

      A. accelerating inflation.

      B. stable unemployment.

      C. declining capital spending.

Solution: A is correct. Inflation is rising at economic peaks.

B is incorrect because unemployment rate continues to fall.

C is incorrect because capital spending expands rapidly, but the growth rate of spending starts to slow down.

4) A pure top-down approach to modeling revenue *most likely* follows the following order:

      A. Starts with the economy; look at successively more narrowly defined levels.

      B. Starts with the economy; look at successively more narrowly defined levels; aggregate projections over products or segments to reach the company level.

      C. Starts with the economy; look at successively more narrowly defined levels; individual product lines, locations, or business segments.

Solution: A is correct. A pure top-down approach has the following approaches:

      Starts with the economy.

      Look at successively more narrowly defined levels.

B and C are incorrect because they combine elements of both top-down and bottom-up approaches.

5) John Wood aims to use the "market growth and market share" approach to forecast revenue through the following steps:

1. Forecast growth in a particular market
2. Evaluate the company's current market share only
3. Apply the expected market share to the forecast
4. Forecast company's revenues

John is *least likely* correct regarding:

A. Step 1

B. Step 2

C. Both Step 1 and Step 2

Solution: B is correct. The second step is "Evaluate the company's current and anticipated market share". The forecast of company's market share is, in fact, more relevant to forecast revenue.

A is incorrect because forecast growth in a particular market is the proper starting point of the approach.

6) Company APAN has headquarters in Portugal and both reporting and functional currency are the Euro. One of its subsidiaries is located in Turkey and the functional currency is the Turkish lira. To translate foreign currency financial statements to consolidate in Portugal, APAN's CFO is *most likely* to:

A. translate all assets and liabilities at the current exchange rate.

B. translate using historical rates because the currency has been depreciating massively in the last decade.

C. use the temporal method.

Solution: A is correct. Because the functional currency of APAN's subsidiary in Turkey is the local currency, the current rate method should be used, and transaction adjustments classified in a separate component of equity within the Parent's balance sheet.

B is incorrect because it defines the translation method based on currency appreciation/depreciation. In fact, accounting standards set recommendations for high inflationary economies, which is not necessarily the case. Yet, the current rate method would be required.

C is incorrect because it applies when the functional currency of the subsidiary is the parent's presentation currency.

7) A company implemented a defined benefit (DB) pension plan for employees and is currently fully funded (funded status is zero). The expected increase in the actuarial rate to discount pension obligations will *most likely* result in a funded status that should be treated for valuation purposes as:

A. Debt equivalent

B. Non-operating assets

C. Increase in pension obligations

B. The expected increase in the actuarial rate to discount pension obligations will decrease the present value of obligations. The plan will be overfunded, considering that expected return on assets is not changed. In fact, there is no causality between actuarial rate for pension obligations and the expected return on pension assets.

A is correct because the funded status should be considered as debt equivalent if underfunded.

C is incorrect for two reasons. Firstly, the present value of pension obligations will, in fact, decrease. Secondly, for valuation purposes the pension obligation is partially/fully offset by pension assets and only the funded status should be considered.

8) An analyst estimated company's beta using a 5-year monthly regression of stock returns over the *benchmark*. The regression output is as follows:

Source	SS	df	MS		Number of obs	=	60
					F(1, 58)	=	871.25
Model	5.3075947	1	5.3075947		Prob > F	=	0.0000
Residual	.353331854	58	.006091929		R-squared	=	0.9376
					Adj R-squared	=	0.9365
Total	5.66092656	59	.095947908		Root MSE	=	.07805

company	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
benchmark	.9608677	.0325531	29.52	0.000	.8957056	1.02603
_cons	.0465713	.0184813	2.52	0.015	.0095769	.0835657

The blume-adjusted beta for the company is *closest to*:

A. 0.987

B. 0.961

C. 0.974

C is correct. The 'blume adjustment' for the beta that comes from a regression aims to correct for drift. The formula is as follows: $\beta_{adj}=\beta_{raw}\times(2/3) + 1.0\times(1/3)$. Therefore, the adjusted beta is 0.974.

A is incorrect because the weights are 1/3 for β_{raw} and 2/3 for the market beta.

B is incorrect because it is the β_{raw}.

9) An analyst presented the following forecasts for SIDEcar: long-run growth rate (g) of 0.5%; net income of EUR 312.325; revenue of EUR 6.237.000, payout of 75%, cost of equity of 10.0%; and ROE of 22.5%. Considering that SIDEcar's stock is currently trading at a trailing 0.4764x Price/Sales, the company is *most likely*:

A. overvalued

B. fairly valued

C. undervalued

A is correct. The company is overvalued because it is trading at 0.4764x of sales, while the estimated value is only 0.3973x. The Price/Sales must be decomposed, as follows:

$$\text{NPM}=\frac{312,325}{6,237,000}=5\%$$

$$\frac{P}{S} = \frac{Share\ price}{Sales} = \frac{NPM \times Payout \times (1+g)}{r-g} = \frac{0.05 \times 0.75 \times (1+0.005)}{0.10 - 0.005} = 0.3973$$

10) The following inputs for the cost of equity were collected by Roger Duphil, a junior analyst:

Rf = 1.2%; β = 0.89; Rm = 9.0%; CRP = 2.5%

William Sanders, CFA, asked Duphil to compute the cost of equity considering that the company faces a risk premium for the country (CRP), yet it is not sensitive to changes in the systematic risk that is country specific (does not depend on company's risk factor). Duphil's calculation of the cost of equity is *closest to*:

A. 8.14%

B. 10.37%

C. 10.64%

Solution: C is correct. The company faces a premium related to the country's risk, however it is not sensitive to company's beta:

$$r_i = RFR + \mathbf{CRP} + \beta_i^{mkt}(\text{MRP}) = 1.2\% + 0.89 \times (9.0\% - 1.2\%) + 2.5\% = 10.64\%$$

A is incorrect because it does not account for CRP.

B is incorrect because it considers CRP sensitive to β.

Case 1 – Cork Premium Industrial (the following questions are related to the same case)

Robert Smith was recently appointed as a sell-side analyst at a leading European investment bank. In the first meeting his supervisor Ramirez Gonzalez, CFA, assigned the coverage of a subsegment of the paper & forest industry – the cork industry. The two leading companies in this industry account for up to 65% market share, while the top 10 are responsible for 95% of the entire market. Robert Smith is concerned that market prices may be overvaluing these leading positions.

Within the cork industry, the main product that represents more than 80% of the entire market is cork stoppers, used mostly in bottled wine. After a thorough analysis, Robert Smith realized that the industry is non-cyclical and has been growing steadily, while the overall economy has growing timidly at +0.5% GDP year-on-year.

Nonprice competition among the cork stoppers producers has been enabling stability in margins, despite the recent increase in the raw materials price. Players in this industry have been benefiting from significant demand and the ability to pass rising raw materials costs to consumers. Robert Smith gathered the following assumptions to estimate *Cork Premium Industrial, Inc* equity value considering 2018YE as the base year:

- Cork Premium Industrial is co-leader worldwide in the cork industry, and the industry is non-cyclical;
- The average selling price will remain constant for 2019FY, while quantity will increase by 3.1% from 7.58 billion units;
- Gross margin per unit will decrease 50 bps;
- Selling expenses should remain stable as a percentage of sales;
- General and administrative expenses are mainly fixed and should remain constant;

- In the early days, the company invested heavily and recently sold non-core assets. However, the current mature nature of the business only requires maintenance CAPEX, which offsets annual deprecations and amortizations of €160 million 2019F;
- Debt should reduce about €100 million in 2019, while cash will remain close to zero;
- Net working capital is stable at 15% of sales;
- The dividend policy has been stable. However, the strong cash flow generation should adjust the policy to another level. After 2019 the company should gradually increase cash dividends from €2.25/sh by 10%/year within the following 4 years and later by the expected terminal growth rate of 2.2%. No repurchases are expected.

Income Statement (€ millions)	2017	2018
Sales	1,856.0	1,895.0
COGS	-761.0	-769.4
Selling expenses	-144.8	-151.6
General and administrative expenses	-372.0	-380.0
Depreciations and amortizations	-157.0	-162.0
Operating profit	**421.3**	**432.0**
Interest expense	-65.4	-64.1
EBT	**355.9**	**367.9**
Taxes	-106.8	-110.4
Net profit	**249.1**	**257.5**
Dividends (€ millions)	225.0	225.0
EPS	2.391	2.575
Equity (book value)		3,840.0
Debt		1,350.0

Robert Smith discussed the cost of capital for the company with Ramirez Gonzalez, CFA. The unusual monetary policy is driving yields to levels never seen and Gonzales prefers to follow a more conservative approach in the long run. After normalizing figures, Robert suggests a risk-free rate of 2.1% and a market premium over the risk-free of 5.8%. Cork Premium Industrial beta is 0.85 and the analyst expects stability in the capital structure. Peers are trading with a Market-to-Book ratio of 1.40.

Ramirez Gonzalez, CFA, is enthusiastic of market-based valuation and describes several adjustments that should be considered in computing trailing multiples specific for Cork Premium Industrial:

1. Normalize EPS over the most recent full cycle;
2. Consider potential dilution of EPS;
3. Consider nonrecurring components of earnings that are company specific.

11) The financial modeling performed by Robert Smith is *most likely* described as:

A. Bottom-up
B. Top-down
C. Hybrid

B is incorrect because the analyst is not basing the analysis on macroeconomic factors. Sales are growing considering last year's volume and the other items of operating income are estimated based on sales or previous year's figures.

There is no indication of a hybrid approach.

12) Based on Robert Smith forecasts, the 2019 free cash flow to equity (FCFE) is *closest* to:

    A. € 177 million
    B. € 168 million
    C. € 268 million

Solution: B is correct.

To estimate the free cash flow to equity (FCFE), the forecast of 2019 income statement is required:

Income Statement (€ millions)	2017	2018	2019
Sales	1,856.0	1,895.0	1,953.7
COGS	-761.0	-769.4	-803.0
Selling expenses	-144.8	-151.6	-156.3
General and administrative expenses	-372.0	-380.0	-380.0
Depreciations and amortizations	-157.0	-162.0	-160.0
Operating profit	**421.3**	**432.0**	**454.5**
Interest expense	-65.4	-64.1	-59.4
EBT	**355.9**	**367.9**	**395.1**
Taxes	-106.8	-110.4	-118.5
Net profit	**249.1**	**257.5**	**276.6**
Amount of profits distributed	225.0	225.0	
EPS	2.391	2.575	
Equity (book value)		3,840.0	
Debt		1,350.0	

Based on the formula:

    FCFE = NI + D&A – ΔNWC – CAPEX + Net Borrowing

    FCFE = 276.6 + 160.0 – 8.8 – 160.0 + (–100.0) = 167.7

In which:

    ΔNWC = (Sales$_{19}$ – Sales$_{18}$) × 0.15 = (1,953.7 – 1,895.0) × 0.15 = +8.8

A is incorrect because it doesn't include the change in NWC.

C is incorrect because it is the amount of the free cash flow to the firm.

13) According to Smith's view on the new dividend policy, the equity value of Cork Premium Industrial in 2018 is *closest* to:

A. € 4.79 billion

B. € 6.25 billion

C. € 5.52 billion

Solution: C is correct.

Robert Smith proposes to use the H-model with a 4-year adjustment towards the long-run growth rate for the dividend.

$$r = r_f + \beta(r_m - r_f) = 0.021 + 0.85(0.058) = 0.070$$

$$P_0 = \frac{D_0[(1 + g_L) + H(g_S - g_L)]}{r - g_L}$$

$$P_0 = \frac{2.25[(1 + 0.022) + 2(0.100 - 0.022)]}{0.070 - 0.022} = 55.22$$

$$V_0 = 55.22 \times 100m \; shares = 5.52 \; billion$$

H is the half period of the short-term growth in dividends = 4 ÷ 2 = 2

A is incorrect because it does not account for the super growth period.

B is incorrect because it does not consider H as half of the 4-year adjustment period.

14) Considering that the company distributed €225 million of cash dividends in 2018, the trailing 2018 Price/Book ratio of Cork Premium Industrial is *closest* to:

A. 1.42

B. 0.84

C. 1.25

Solution: C is correct.

This question requires to decompose the Price/Book formula:

$$\frac{P_0}{B_0} = \frac{D_0(1 + g)}{r - g} \times \frac{1}{B_0} = \frac{ROE \times Payout \times (1 + g)}{r - g}$$

$$\frac{P_0}{B_0} = \frac{0.0671 \times 0.8738 \times (1 + 0.022)}{0.070 - 0.022} = 1.248$$

Payout is 87.38% = 225.0 ÷ 257.5

ROE is 6.71% = 257.5 ÷ 3.840.0

A is incorrect because it doesn't not consider the payout ratio.

B is incorrect because the terminal growth rate is not considered.

15) Which of the following market structures is *most likely* applicable to the industry of Cork Premium Industrial?

    A. Monopolistic competition
    B. Oligopoly
    C. Perfect competition

Solution: B is correct.

The cork industry is mostly characterized by oligopoly. There are a few sellers (10 players dominate 95% of the market), and the product is very homogeneous. Companies have pricing power, which is exemplified with the ability to pass raw material price increases to consumers. Barriers to entry are not low because of the heavy investments that are required in the early days.

16) Gonzalez is *least likely* correct in the proposed adjustments to market-based valuation regarding:

    A. Adjustment 1.
    B. Adjustment 2.
    C. Adjustment 3.

Solution: A is correct.

In fact, the three adjustments should be considered in estimating trailing multiples. However, all adjustments defined by Gonzalez are specific for Cork Premium Industrials and the company operates a non-cyclical business. Therefore, adjusting for EPS over the most recent full cycle is not required.

B is incorrect because the number of shares outstanding appears to change over time (2018: 100.0 m; 2017: 104.2 m), which may derive from share repurchases as a mechanism to distribute profits to shareholders.

       # 2018 = 257.5 ÷ 2.575 = 100.0

       # 2017 = 249.1 ÷ 2.391 = 104.2

C is incorrect because nonrecurring items should be accounted for when value companies. Otherwise, valuation through multiples would be biased by items that are nonrecurring (e.g., gain/loss in the sale of a non-core asset).

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