## MULTIPLE CHOICE TEST (individual assignment)

# Time = 1 hour

Read each question carefully and choose the best response: indeed, **there is only one correct answer per question!**

**WRITE BELOW IN THIS ANSWER SHEET THE LETTER CORRESPONDING TO THE CORRECT ANSWER PER EACH QUESTION.**

**FILLING THIS ANSWER SHEET IS MANDATORY FOR HAVING THE TEST CHECKED AND EVALUATED.**

The international convention for decimal and thousand separators is used – i.e., the comma is used to separate groups of thousands and the dot is used to separate decimals.

If you have read the above text, you can start with the test!

**Please state in CAPITAL LETTERS your Name and Surname in the following spaces**

| | |
|---|---|
| **NAME** | |
| **SURNAME** | |
| **STUDENT ID** | |

***For each question (1-9) indicate the right answer with the corresponding CAPITAL LETTER [A-B-C-D]. Please consider that only this answer sheet will be assessed.***

| ***Question*** | ***1*** | ***2*** | ***3*** | ***4*** | ***5*** | ***6*** | ***7*** | ***8*** | ***9*** |
|---|---|---|---|---|---|---|---|---|---|
| ***Your Answer*** | | | | | | | | | |

**QUESTION N. 1 (3+3 points)**

Alpha manufactures and sells simple copper products. Only the suppliers of raw materials allow Alpha to postpone the payment of invoices. The following accounting information is available:

- ATR = 0.5
- Cash flow from operating activities = +-2,700 €
- Cost for consumption of raw materials = 24,000 €
- Cost of labour = 9,000 €
- Current assets = 10,000 €
- Current bank debts = 1,000 €
- Current bonds = 2,000 €
- Current Ratio = 1.25
- Financial income = 500 €
- Tax rate = 40%
- Liabilities / Equity = 0.6
- Nominal value of shares = 2 €/share
- Share price = 2.4 €/share
- Non-current bank debts = 14,000 €
- Non-current bonds = 8,000 €
- Number of issued shares = 10,000 shares
- Other current financial liabilities = 0 €
- Reserves = 27,600 €
- Revenues = 40,000 €
- ROS (EBIT Margin) = 12.5%
- Changes in the value of finished goods (final – initial) = +2,000 €
- Changes in the value of raw materials (final – initial) = +1,000 €
- Trade Payables are the only Current non-financial Liabilities

Based on the available information:

1a) Which is the average cost of financial liabilities? (3 points)

A. 10%

B. 6%

C. 2%

D. None of the other answers is correct

1b) How many days, on average, are needed to collect payables? (3 points)

A. Around 73 days

B. Around 68 days

C. Around 79 days

D. It cannot be calculated with the available data

**SOLUTION**

1a) Knowing that ATR = Revenues / Assets, Assets = Revenues / ATR = 40,000 / 0.5 = 80.000€.

Assets are always equal to Equity + Third part Liabilities = 80,000€

Knowing that Third part Liabilities / Equity = 0.6, Equity = Assets / (1+0.6) = 50,000€

Equity = Share capital + Reserves + Net Profit

Share capital = nominal value * issued shares = 2 * 10,000 = 20,000€

Net profit = 50,000 – 20,000 – 27,600 = 2,400€

Knowing that ROS = EBIT margin = EBIT / Revenues = 12.5%, EBIT = 12.5% * Revenues = 5,000€

Knowing that tax rate = 40% and that Net Profit = EBT * (1 - tax rate), EBT = 4,000€

Knowing that EBIT + financial income - financial costs = EBT, financial costs = EBIT + financial income - EBT = 1,500€

Financial liabilities = (non-current + current bank debts) + (non-current + current bonds) = 25,000€

**Average cost of financial liabilities = financial costs / financial liabilities = 1,500 / 25,000 = 6%**

Wrong solutions:

a) Does not include bonds at denominator
b) Ok
c) Only financial income at numerator

Knowing that Current Ratio = Current Assets / Current Liabilities, Current Liabilities = Current assets / CR = 10,000 /1.25 = 8,000€

Being Current Liabilities = Current financial liabilities + Trade Payables→ Trade Payables = 5,000€

Purchase of raw materials = Cost for the consumption of raw materials + Variation of raw materials (final – initial) = 24,000 + 1,000 = 25,000

**DPO = Trade Payables / Purchase of raw materials * 365 = around 73 days**

Wrong solutions:

b) the denominator includes Changes in Inv FG

c) wrong sign of Change in Inv RM

**QUESTION N. 2 (2+4 points)**

2a) The following data were extracted from Company Zeta 2022 budgets:

Depreciation and amortization = + 70 Million €

Tax rate = 30%

Change in Net Operating Working Capital (starting – ending value) = + 10 Million €

FCFF= + 100 Million €

ROI = +10%

Financial Liabilities = 720 Million €

Equity = +480 Million €

Cost of equity = +10%

Cost of debt = +8%

Cash inflows form Sales of Assets = 0€

Based on this information, what is the budgeted value of CAPEX in 2022? (2 points)

A. +64 Million €
B. +44 Million €
C. +80 Million €
D. +10.4 Million €

**SOLUTION**

EBIT = 0,1*(720+480) = 120

Then, by applying the FCFF formula:

CAPEX = EBIT*(1-t) + D&A + Change in NOWC (in – fin) – FCFF = 64 Million €

2b) Below you can find the expected values of FCFF in the 2023-2026 period:

- (2023) 110 Million €
- (2024) 104.50 Million €
- (2025) 112.86 Million €
- (2026) 116.25 Million €

No more data are available after 2026. Anyway, the CFO of the company believes that the FCFF of the company are expected to grow from 2027 onwards (growth rate = 5% per year).

2b) Based on the available information, what is the Enterprise Value of the company (considering 2022 as year 0)? (4 points)

A. Around 1,660 Million €
B. Around 4,365 Million €
C. Around 5,644 Million €

D. Around 5,716 Million €

**SOLUTION**

WACC = 0.10 * (480/1200) + 0.08 * (720/1200) * (1-0.3) = 7.36%

TV (2026) = 116.25 (1+0.05%)/(0.074-5%) = 1579.43

EV = 100 + 110/1,074 + 104,50/$(1,074)^2$+ … + 1,579.43/$(1,074)^4$ = 4,364.83€

**QUESTION N. 3 (6 points)**

You are asked to evaluate an American-based company, *Mufflin LLC,* that has developed and commercialized one mobile gaming application, which is available for American users only. The App is very successful, and, as of December 31st, 2021, it ranked 1st in the gaming section of the App store (both Android and iOS). Downloading the App is free of charge and the company revenues come from advertising (i.e., each time an advertisement is showed to the user, the company is paid by an advertising publisher) and offering users the possibility of purchasing premium functionalities (e.g., colored armors).

You know the following data about Mufflin LLC, as of December 31st, 2021:

- Cash ($): 10,000
- D&A ($): 2,000
- Net profit ($): 5,000
- Number of outstanding shares: 100,000
- Average daily active users in 2021 (i.e., the average number of users who have accessed the App in a day in 2021): 50,000
- Number of downloads in 2021: 1,000,000
- Book value of equity ($): 100,000
- Debts / Equity = 2
- Net profit growth (year 2021 vs year 2020) = 10%

Information about potential comparable companies is reported as follows:

- Company A provides a free cooking App for the American market; the company adopts a mixed revenues model: advertising plus subscriptions for accessing premium functionalities. The financial leverage (Debt / Equity) is = 2.1, and the net profit has grown of 10% the last year.
- Company B provides a pay-to-download mobile dating app for the American market with no ads and no further in-app purchases. The financial leverage (D/E) = 1, net profit growth (year 2021 vs 2020) = 0.3%
- Company C has developed and commercialized a free mobile gaming app for the Chinese market, and its revenues model is based on in-app ads. The financial leverage = 0.8 and the net profit decreased of 5% in the last year.
- Company D is an online only newspaper, basing its revenues on ads in the news and periodic subscriptions to the premium mode, where users have access to blocked sections of the newspaper. The financial leverage is 1.8 and the net profit growth in the last year is around 8%.
- Company E commercialized a social media app, which is now popular in America. The app revenues model is based on in-app ads and subscriptions to functionalities for premium users (e.g. business accounts for influencers). Its financial leverage is around 2.2, while the net profit has grown of 6% last year.

The table below provides key figures of potential comparable companies, data as of December 31st 2021.

| Company | EV (k$) | Market capitalization of equity (k$) | Average daily active users in 2021 (k) | Number of downloads in 2021 (k) | Net income (k$) | Cash (k$) | Book Value of Equity (k$) | EBITDA (k$) |
|---|---|---|---|---|---|---|---|---|
| A | 200 | 220 | 50 | 800 | 30 | 10 | 120 | 80 |
| B | 300 | 250 | 60 | 1,300 | 10 | 30 | 150 | 40 |
| C | 500 | 420 | 120 | 2,000 | 70 | 5 | 180 | 120 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| D | 250 | 260 | 55 | 1,200 | 5 | 15 | 170 | 60 |
| E | 150 | 130 | 30 | 700 | 20 | 18 | 100 | 60 |

Based on the available data, the Enterprise Value of Mufflin LLC is (please, use two significant digits in your computations):

1) EV = 226,000 $

2) EV = 21,420 $

3) EV = 232,000 $

4) EV = 220,000 $

SOLUTION:

1) Selection of comparable companies.

You do not have data to calculate a proxy of risk, growth potential and cash generation. To select comparable companies, it is important considering the reference market and the strategy: it requires understanding where and how business value is created (i.e. active users is the key value driver in this case since active users see ads and periodically buy subscriptions).

Based on the above considerations:

- B is excluded since it has a business based on downloads, not on active users.
- C is excluded since it operates in the Chinese market.
- A, D, E are comparable companies

2) Selection of EV multiple.

The multiple selected in this case is average daily active users in 2021, it is the main value driver for companies operating on ads-based businesses with premium functionalities, not the number of users who has the app (i.e., # of downloads).

EBIT, EBITDA, Net Income multiples are not applicable due to data availability (furthermore, the active users is a better proxy of value creation).

Average value of the multiple for the selected comparable companies:

$$\frac{\frac{EVa}{AUa}+\frac{EVd}{AUd}+\frac{EVe}{AUe}}{3}=4.52$$

Apply the multiple to the target company:

$$EVtarget = Multiple\ x\ Parametro\ (target) = 4.52\ x\ 50{,}000 = 226{,}000\ \$$$

Wrong answers:

B. is obtained using the EV/EBITDA as a multiple and calculating EBITDA as Net income + D&A, which is wrong.

C. is obtained including company B as a comparable.

D. is obtained using the EV/number of downloads as a multiple.

**QUESTION N. 4 (2 points)**

Company Mokros allocates to Business Units the corporate costs generated by its legal department. In 2021, the total amount of actual costs (both fixed and variable) attributable to the legal department was 50,000 €. In the same year, the overall capacity was 1,920 h. The services provided by the legal department are shared among 5 Business Units (BUs). Mokros uses an allocation system based on actual consumption.

| Business unit | Actual consumption in 2021 (h) |
|---|---|
| BU A | 720 |
| BU B | 240 |
| BU C | 120 |
| BU D | 120 |
| BU E | 60 |

Based on this information, which of the following statement is CORRECT?

A. 34% of the costs generated by the legal department was not allocated
B. More than 28 k€ were allocated to BU A
C. The capacity of the legal department was saturated at 60%
D. Less than 2 k€ were allocated to BU E

SOLUTION

For each BU$_i$, calculate the drivers as: $\frac{\text{h/y BUi}}{\sum_{i=A}^{E} \text{h/y BUi}}$

| Usage per Business Unit (BU) | h/year | Drivers | Allocated costs yearly (50,000 € * driver) |
|---|---|---|---|
| BU A | 720 | 0.57 | 28,500 |
| BU B | 240 | 0.19 | 9,500 |
| BU C | 120 | 0.095 | 4,750 |
| BU D | 120 | 0.095 | 4,750 |
| BU E | 60 | 0.05 | 2,500 |
| **TOTAL** | **1,260** | **1.00** | **50,000** |

From the solution you can state that:

- You do not have unallocated costs over the total costs
- You have resources saturated almost at 66% = $\frac{1{,}260 \text{ h/y}}{1{,}920 \text{ h/y}}$
- You have more than 2 k€ allocated to BU E (indeed you allocated 2,500 €)
- Option B is correct (indeed you allocated 28,500 € to BU A)

**QUESTION N. 5 (2 points)**

Lambda is a group operating in the beverage industry and it is organized into two main Business Units, one located in Italy and the other one located in Ireland. Each BU is a separate legal entity. While BU (A) oversees the production and sales of Soft Drinks, BU (B) oversees the production and sales of Wellbeing Drinks. The controller of the company is designing the management reporting system for the BUs.

Considering that there are some exchanges of goods between the two BUs, which of the following sentences is CORRECT?

A) The definition of the reporting system at the BU level should not take into account the impact of income taxes on the profitability of the BUs;
B) The definition of transfer prices affects the profitability of the two BUs, but not the overall group profitability
C) Since BUs are independent legal entities, accounting-based indicators are the only performance measures that can be used at BU level in this case
D) Accounting-based indicators should be complemented with non-financial indicators to timely capture early signals and monitor the execution of long-term strategy

SOLUTION

- A is false since there are fiscal implications if BUs are autonomous juridical entities.
- B is false since Bus are independent legal entities located in different countries, so transfer prices affect financial statements and, then, taxes on profit (which usually vary from country to country)
- C is false: the fact that BUs are independent legal entities does not pose limitations to the use of different typologies of performance measurement
- D is true

**QUESTION N. 6 (2 points)**

In case of intra-company transactions (i.e., transactions between different BUs/divisions belonging to the same legal entity) which of the following is NOT a purpose of a Transfer Pricing System?

A. To communicate data that support decision-making at the BU level;
B. To determine the overall company profitability
C. To foster efficiency of the different divisions
D. To determine profitability of the different BUs/divisions

SOLUTION

A. True: transfer prices are used to drive decision-making
B. False: in case of intra-company transactions the overall profitability of the company is not affected by transfer prices
C. True (see for ex market prices)
D. True (this is the fundamental objective of a TS)

**QUESTION N. 7 (2 points)**

Consider 3 years bonds emission, which of the following statements is WRONG?

A. If the bonds have fixed-rate and bullet capital repayment, the interest costs ~~payments~~ included in the Income Statement over the three years are always the same
B. If the bonds have floating rate and bullet capital repayment, the financial costs included in the Income Statement over the three years are decreasing all over the years
C. If the bonds have zero coupon rate and bullet capital repayment, the interests included in the Income Statement over the three years are always the same. The bonds are issued most likely by the government
D. If the bonds are hybrid securities, the company might need to adjust the statement of changes in equity on the third year.

SOLUTION

- Statement A is correct, as all the interest payments will be equal because the rate is fixed.
- Statement B is WRONG, as the rate is floating so there is not clear understanding if the financial cost will be higher or lower.
- Statement C is correct, as all the interest payments will be equal and "0" because the rate is zero, while the "0" coupon bonds are issued normally by governments or other very stable organizations.
- Statement D is correct, as all the possible changes in equity should be considered in the Statement of changes in equity, thus shareholders know about possible changes.

**QUESTION N. 8 (2 points)**

European businesses have been significantly affected by price rises and supply shortages of critical raw materials – such as copper, silver, and gold – because of the pandemic flu. Alpha is an Italian company that produces home copper ornaments. The logistic manager is concerned about the capability of Alpha to purchase copper in the next years. Because of that, he decided to buy an additional stock of copper (cost of 15,000€) to be left in the warehouse in case of need. This additional stock is not expected to be used in 2022.

Considering the purchase of the additional stock of copper, which one of the following statements is CORRECT?

A. The EBIT 2022 will decrease by 15,000 €
B. The NOWC 2022 will decrease by 15,000 €
C. The COGS 2022 will increase by 15,000 €
D. None of the other statements

SOLUTION

This question refers to the matching principle that states that only costs related to products sold must be included in the income statement and affect EBIT. In the light of the matching principle:

- Statement A is wrong because EBIT is not affected by the costs of raw materials that have been purchased for the warehouse
- Statement B is wrong because the increase of the warehouse increases also the NOWC
- Statement C is wrong

- Statement D is correct because all other statements are wrong

**QUESTION N. 9 (2 points)**

Which of the following sentences is CORRECT?

A. Companies use generally the zero-based-budget approach to budget period costs for about three/five years in sequence and the incremental approach once every three/five years to "clean" the potential mistakes due to the application of the zero-based approach
B. While the incremental approach should be preferred for Research & Development expenses, the zero-based budget should be preferred for General expenses
C. Budgeting product costs with the incremental approach can be done for three/five years in sequence, then the zero-based budget should be used to “clean” the potential mistakes due to the application of the incremental approach
D. None of the other statements is correct.

SOLUTION

- Statement A is wrong because what happens is the opposite. Companies use generally the incremental approach to budget period costs for about three/five years in sequence and the zero-based-budget approach once every three/five years to "clean" the potential mistakes due to the application of the incremental approach
- Statement B is wrong because it might be the opposite. While R&D might require a minimum set of resources to run routinely activities and additional resources for new projects, general expenses can be assumed stable over time (except in the case of extraordinary activities9.
- Statement C is wrong because product costs are not budgeted with incremental or zero-based approaches, that are used for period costs
- Statement D is correct because all other statements are wrong