Corporate Finance

Mid-Term Exam – Spring 2011/2012

Version A

1 hour and 30 minutes

This exam consists of 20 questions. Each question is worth 1 point. Work out the problems on scratch paper without any rounding up the partial results. Write down the correct answer with four decimal places on the line provided. No explanation is required. **No partial credit will be given even if the mistake that is made is obvious.**

This is a closed book exam. You are allowed one double-sided A4 sheet of notes. Calculators are permitted. Good luck!

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Print Name

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Print Number

Name: ____ Number: ______________

Use the following information to answer Problems 1-3:

Tiago wants to buy a brand new car that costs 50,000 Euros. Since he does not have any cash he is asking for a loan to buy the car. The loan will be paid back in 36 constant monthly installments. The loan interest rate (stated annual) is 4.8%.

Problem 1
What is the loan effective annual interest rate?

Answer: __________________________

Problem 2
How much is the installment if the first installment is paid one month from now?

Answer: __________________________

Problem 3
How much is the installment if the first installment is paid six months from now and there is not any payment during the first six month?

Answer: __________________________

Use the following information to answer Problems 4-5:

Tiago's parents gave him 10,000 Euros and, therefore, he only has to borrow 40,000 Euros. The loan interest rate is now 3.6% (stated annual) and demands him to pay an installment of 1,173.86 Euros each month, starting next month, during 3 years.

Problem 4
How much is the interest in the second installment?

Answer: __________________________

Problem 5
How much will he owe the bank two years from now?

Answer: __________________________

Name: ____ Number: _____________

Use the following information to answer Problems 6-9:

The following zero coupon and semi-annual coupon bonds, with a face value of 100 Euros, are available in the market:

Maturity	Clean Price	Coupon Rate
0.5 year	98.52	2%
1 year	94.70	0%
1.5 year	91.76	0%
2 years	96.46	4%

Problem 6

What is the 1-year maturity spot rate?

Answer: __________________________

Problem 7

What is the forward rate from 1.5 years to 2 years?

Answer: __________________________

Problem 8

What is the dirty price of a 5% annual coupon bond that matures in one semester?

Answer: __________________________

Problem 9

What is the clean price of that same 5% annual coupon bond that matures in one semester?

Answer: __________________________

Name: ____ Number: _____________

Use the following information to answer Problems 10-14:

Gincana do Ega is a publicly-listed company that will generate earnings per share of 10 Euros next year and the payout ratio will be 75%. Shareholders require a return of 8% and Gincana do Ega will generate a return on equity of 10%.

Problem 10
What is the expected dividend growth rate?

Answer: _________________________

Problem 11
What is the current stock price?

Answer: _________________________

Problem 12
What is the current net present value of growth opportunities (NPVGO)?

Answer: _________________________

Problem 13
What is the dividend yield?

Answer: _________________________

Problem 14
What will be the current stock price if return on equity increases to 12% in year 3 and thereafter?

Answer: _________________________

Name: ____ Number: ______________

Use the following information to answer Problems 15-18:

Company Nova is investing in a machine that costs 10,000 Euros with annual operating expenses of 3,000 Euros. The company will operate only for two years. The machine will be depreciated in four years using the straight-line depreciation method. The salvage value before taxes of the machine will be 6,000 Euros two years from now. The annual sales revenues are 8,000 Euros. Working capital is 10% of next year sales. The discount rate is 10% and the marginal tax rate is 30%.

Problem 15
What is the project free cash flow on year 0?

Answer: __________________________

Problem 16
What is the project free cash flow on year 1?

Answer: __________________________

Problem 17
What is the project free cash flow on year 2?

Answer: __________________________

Problem 18
What is the project net present value (NPV)?

Answer: __________________________

Use the following information to answer Problems 19-20:

A company must choose between the two mutually-exclusive perpetual projects with the following cash flows (in Euros):

	Project A	Project B
Year 0	-100	-200
Year 1 and thereafter	30	50

Problem 19
What are the internal rates of return of projects A and B?

Answer: __________________________

Problem 20
What is the maximum discount rate that will make the company choose project B?

Answer: __________________________

Corporate Finance

Mid-Term Exam – Spring 2011/2012

Version B

1 hour and 30 minutes

This exam consists of 20 questions. Each question is worth 1 point. Work out the problems on scratch paper without any rounding up the partial results. Write down the correct answer with four decimal places on the line provided. No explanation is required. **No partial credit will be given even if the mistake that is made is obvious.**

This is a closed book exam. You are allowed one double-sided A4 sheet of notes. Calculators are permitted. Good luck!

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Print Name

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Print Number

Name: ____ Number: _____________

Use the following information to answer Problems 1-3:

Tiago wants to buy a brand new car that costs 60,000 Euros. Since he does not have any cash he is asking for a loan to buy the car. The loan will be paid back in 36 constant monthly installments. The loan interest rate (stated annual) is 5.4%.

Problem 1
What is the loan effective annual interest rate?

Answer: ________________________

Problem 2
How much is the installment if the first installment is paid one month from now?

Answer: ________________________

Problem 3
How much is the installment if the first installment is paid six months from now and there is not any payment during the first six month?

Answer: ________________________

Use the following information to answer Problems 4-5:

Tiago's parents gave him 10,000 Euros and, therefore, he only has to borrow 50,000 Euros. The loan interest rate is now 4.2% (stated annual) and demands him to pay an installment of 1,480.65 Euros each month, starting next month, during 3 years.

Problem 4
How much is the interest in the second installment?

Answer: ________________________

Problem 5
How much will he owe the bank two years from now?

Answer: ________________________

Name: ____ Number: _____________

Use the following information to answer Problems 6-9:

The following zero coupon and semi-annual coupon bonds, with a face value of 100 Euros, are available in the market:

Maturity	Clean Price	Coupon Rate
0.5 year	98.66	2%
1 year	95.69	0%
1.5 year	94.42	0%
2 years	100.79	4%

Problem 6

What is the 1-year maturity spot rate?

Answer: __________________________

Problem 7

What is the forward rate from 1.5 years to 2 years?

Answer: __________________________

Problem 8

What is the dirty price of a 6% annual coupon bond that matures in one semester?

Answer: __________________________

Problem 9

What is the clean price of that same 6% annual coupon bond that matures in one semester?

Answer: __________________________

Name: ____ Number: _______________

Use the following information to answer Problems 10-14:

Gincana do Ega is a publicly-listed company that will generate earnings per share of 15 Euros next year and the payout ratio will be 75%. Shareholders require a return of 8% and Gincana do Ega will generate a return on equity of 12%.

Problem 10
What is the expected dividend growth rate?

Answer: ____________________________

Problem 11
What is the current stock price?

Answer: ____________________________

Problem 12
What is the current net present value of growth opportunities (NPVGO)?

Answer: ____________________________

Problem 13
What is the dividend yield?

Answer: ____________________________

Problem 14
What will be the current stock price if return on equity increases to 15% in year 3 and thereafter?

Answer: ____________________________

Name: ____ Number: ______________

Use the following information to answer Problems 15-18:

Company Nova is investing in a machine that costs 12,000 Euros with annual operating expenses of 4,000 Euros. The company will operate only for two years. The machine will be depreciated in four years using the straight-line depreciation method. The salvage value before taxes of the machine will be 7,000 Euros two years from now. The annual sales revenues are 10,000 Euros. Working capital is 10% of next year sales. The discount rate is 10% and the marginal tax rate is 30%.

Problem 15
What is the project free cash flow on year 0?

Answer: ___________________________

Problem 16
What is the project free cash flow on year 1?

Answer: ___________________________

Problem 17
What is the project free cash flow on year 2?

Answer: ___________________________

Problem 18
What is the project net present value (NPV)?

Answer: ___________________________

Use the following information to answer Problems 19-20:

A company must choose between the two mutually-exclusive perpetual projects with the following cash flows (in Euros):

	Project A	Project B
Year 0	-100	-200
Year 1 and thereafter	15	25

Problem 19
What are the internal rates of return of projects A and B?

Answer: ___________________________

Problem 20
What is the maximum discount rate that will make the company choose project B?

Answer: ___________________________