

BUSINESS FINANCE
FIN2304

TEST 2 - VERSION A

MARCH 2011

TIME: 1:20 hours

WEIGHT 30%

INSTRUCTOR:

Stephanie Christink, Scott McBride, Ildebrando A. de A. Lucas

STUDENT'S NAME: _____

SECTION #: _____

STUDENT (ID #): _____

INSTRUCTIONS:

PART A: MULTIPLE CHOICE QUESTIONS (WEIGHT 30%)

- 1) CHOOSE THE MOST APPROPRIATE ANSWER.
- 2) PLACE YOUR ANSWER ON THE COMPUTER SHEET
- 3) THERE ARE TWENTY (20) QUESTIONS

PART B: QUESTIONS AND PROBLEMS (WEIGHT 70%)

- 1) DO ALL QUESTIONS ON THE TEST PAPER.
- 2) SHOW ALL FORMULAS AND/OR CALCULATOR ENTRIES
- 3) ROUND ALL ANSWERS TO FOUR (4) DECIMAL PLACES
- 4) THERE ARE FIVE (5) QUESTIONS

Out of 25:

TOTAL 100%

Question 1 (5 Marks)

The following information is for LAST Company;

Net Income (Profit) = \$80,000

Sales are \$800,000

The pay-out ratio is 40%

The Capital Structure is 0.45D + 0.55E = 1

The CIR ratio is 4.5

a) Calculate the Retained Earnings (Dollar amount). (1 Mark)

$$RE = \text{retention ratio} \times \text{Net Income}$$
$$80,000 \times 0.6 = 48,000$$

b) Calculate the ROA. (1.5 Mark)

$$ROA = \frac{NI}{TA} = \frac{80,000}{3,600,000}$$
$$= 0.022222$$
$$\approx 2.2\%$$

$$CIR = \frac{TA}{TS} = 4.5$$
$$\frac{TA}{800,000} = 4.5$$
$$TA = 800,000 \times 4.5$$
$$TA = 3,600,000$$

c) Calculate the ROE. (1.5 Mark)

$$ROE = \frac{NI}{TE}$$
$$= \frac{80,000}{1,980,000} = 0.0404$$
$$.55E = 3,600,000 - .45D$$
$$E = 1,980,000$$

d) Calculate the Internal Growth Rate. (1 Mark)

$$IGR = \frac{ROA \times R}{1 - ROA \times R}$$
$$= \frac{0.022222 \times 0.6}{1 - 0.022222 \times 0.6}$$
$$= \frac{0.0133333}{1 - 0.0133333}$$
$$= \frac{0.0133333}{0.98666667}$$
$$= 0.01351351$$

Question 2 (7 Marks)

Sara is planning to purchase a house for \$500,000. She will apply a \$100,000 down payment on the house. The bank is quoting an annual mortgage loan rate of 4.95% with an amortization period of 25 years. This is a Canadian mortgage loan.

- a) Calculate the monthly payment on this mortgage. (3 Marks)

$$FV = 0$$

$$PV = -400,000$$

$$n = 300$$

$$i = 4.95\%$$

$$PMT = 12$$

$$PMT = 2,315.047652$$

- b) Calculate the Interest paid on this mortgage loan over the entire 300 months. (1 Marks)

$$P_1 = 1$$

$$P_2 = 300$$

$$INT = 294,514.2955$$

- c) Calculate the principal repaid during year 3 only. (1 Mark)

$$P_1 = 25$$

$$P_2 = 76$$

$$Princ = 9,227.681655$$

- d) Set-up a loan amortization schedule for these 2 Periods. (2 Marks)

Period	Beginning Balance	Total Monthly Payment	Interest Paid	Principal Paid	Ending Balance
22	385081.9251	2315.0476	1572.3225	742.7222	384339.21
23	384339.21	2315.0476	1569.2921	745.7546	383593.4888

Question 3 (8Marks)

ASSUME;

Next year's sales are projected to increase by 10% "Percentage of sales' approach" – All costs are proportional to sales in the pro forma Statement. Financial statements provided below

Sales are at full capacity and the Pay-Out Ratio is 35%.

Management would like to know how much they need to borrow externally if any.

Make sure to clearly indicate the amounts on the tables provided below - Realistic approach where management decides where to apply ALL external borrowing on All debt and owner's equity.

9=10/10 P

INCOME STATEMENT & PRO FORMA INCOME STATEMENT (\$)			
	BASE YEAR (2009)	PRO FORMA (2010)	
ACCOUNTS			
SALES	\$5,000	5,500	
ADMINISTRATIVE COSTS	2,500	2,750	
DEPRECIATION	500	550	
EBIT	2000	2200	
TAX (30%)	600	600	
NET INCOME	1400	1540	
DIVIDENDS .35	490	539	
RETAINED EARNINGS .65	910	1601	

BALANCE SHEET & PRO FORMA BALANCE SHEET (\$)					
	BASE YEAR 2009	PRO FORMA 2010	ACCOUNTS	BASE YEAR 2009	PRO FORMA 2010
ACCOUNTS			ACCOUNTS		
CASH	500	550	A/P	1,500	1,500
A/R	2,000	2200	N/P	1,500	1,500
INVENTORY	3,000	3300	TOTAL CURRENT LIABILITIES	3,000	3000
TOTAL CURRENT ASSETS	5,500	6,050	LONG TERM DEBT	4,000	4,000
PLANT & EQUIPMENT	12,000	13200	OWNER'S EQUITY		
GOODWILL	500	550	COMMON STOCK	6,000	6,000
			RETAINED EARNINGS	5,000	6001
TOTAL ASSETS	18,000		TOTAL LIABILITIES & OWNER'S EQUITY	18,000	19,001
			EFN		1799
			Pro Forma Total Liabilities & Owner equity		19,800

a) Complete the above Income Statement and the Pro Forma Income Statement. (2 Marks) ✓

b) Complete the above Balance Sheet and Pro Forma Balance Sheet. (3 Marks) ✓

c) Calculate the CIR. (1 Mark)

$$CIR \frac{TA}{FS} = \frac{18,000}{5,000} = 3.6$$

d) Using the information from the above tables, and if the Company expects to maintain the same D/E ratio for next year and cannot issue equity, calculate the EFN using the Finance approach not using Financial Statements. Show all calculations. (Sustainable growth EFN approach) (2 Marks)

$$\begin{aligned}
 Q^* &= A \times q - [PS(R) \times (1+q)] - [PS(R) \times (1+q) \times D/E] \\
 &= 18,000 \times 1 - [0.28 \times 5,000 \times 1.65 \times (1.1) + [0.28 \times 5,000 \times 1.65 \times 1.1] \times 0.6333] \\
 &= \frac{7,000}{1,000} \\
 &= 0.6333 \\
 &= 1,800 - [1,001 + 637] \\
 &= 1,800 - [1,638] \\
 Q^* &= 162 \text{ NO larger can borrow}
 \end{aligned}$$

Question 4 (3 Marks)

If the discount rate for the following cash flows has an annual rate of 5% compounded monthly, what is the **FUTURE VALUE** of these cash flows at the end of year 6? Show all calculations on following page (3 Marks)

YEARS	CASH FLOW
0	1,000
1	500
2	200
3	600
4	100
5	0
6	0

$$\begin{aligned}
 EAR &= \left(1 + \frac{R}{4}\right)^{4M} - 1 \\
 &= \left(1 + \frac{.05}{12}\right)^{1 \times 12} \\
 &= (1.00416667)^{12} \\
 &= (1.051161898) - 1 \\
 &= 0.051161898
 \end{aligned}$$

$$NPV = 2,255.162054$$

$$P/F_0 = 1,000 \quad I = 5.1161898$$

- CO1 = 500
- CO2 = 260
- CO3 = 600
- CO4 = 100
- CO5 = 0
- CO6 = 0

Question 5 (2 Marks)

If you had two investments, (A), and (B) that you could invest for a period of 1 year; You can either invest \$5,000 in (A) that pays an annual rate of 2.5% compound continuously, or You can invest \$5,000 in (B) that pays an annual rate of 2.65% compounded monthly. Which investment would you choose? Make sure to include, at least, 4 decimals and show all calculation. (2 Marks)

$$\begin{aligned}
 1.025315121 &= 5,186.575603 \\
 (1.002108333)^{12} &= 1.026824246 \times 5000 = \underline{\underline{5134.121220}}
 \end{aligned}$$

Invest in B

Answer Key

Test 2 "A"

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

BUSINESS FINANCE
FIN2304

TEST 2 - VERSION B

MARCH 2011

TIME: 1:20 hours

WEIGHT 30%

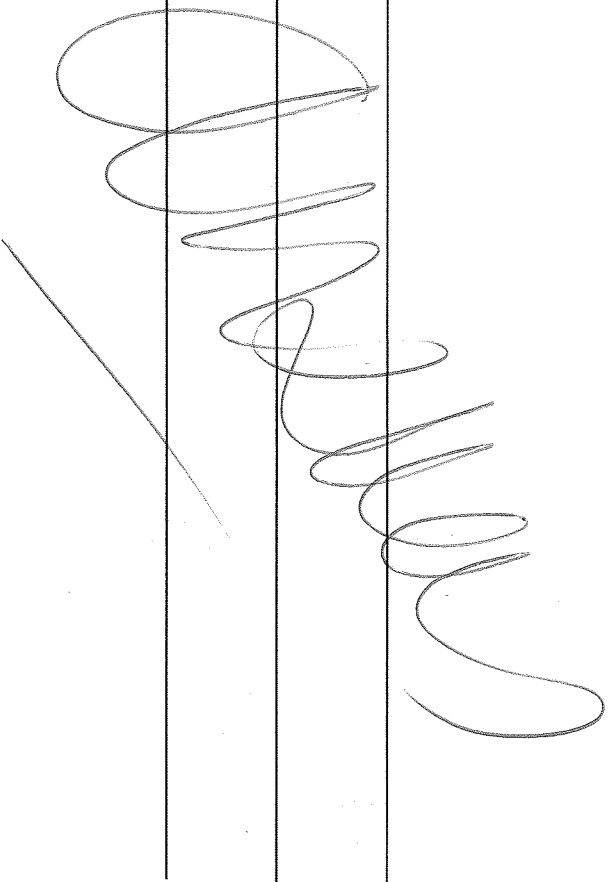
INSTRUCTOR:

Stephanie Christink, Scott McBride, Ildebrando A. de A. Lucas

STUDENT'S NAME: _____

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INSTRUCTIONS:

PART A:

MULTIPLE CHOICE QUESTIONS

(WEIGHT 30%)

- 1) CHOOSE THE MOST APPROPRIATE ANSWER.
- 2) PLACE YOUR ANSWER ON THE COMPUTER SHEET
- 3) THERE ARE TWENTY (20) QUESTIONS

PART B:

QUESTIONS AND PROBLEMS

(WEIGHT 70%)

- 1) DO ALL QUESTIONS ON THE TEST PAPER.
- 2) SHOW ALL FORMULAS AND/OR CALCULATOR ENTRIES
- 3) ROUND ALL ANSWERS TO FOUR (4) DECIMAL PLACES
- 4) THERE ARE FIVE (5) QUESTIONS

Out of 25:

TOTAL 100%

Question 1 (2 Marks)

If you had two investments, (A), and (B) that you could invest for a period of 1 year; You can either invest \$3,000 in (A) that pays an annual rate of 2.45% compound continuously, or You can invest \$3,000 in (B) that pays an annual rate of 2.5% compounded monthly. Which investment would you choose? Make sure to include, at least, 4 decimals and show all calculation. (2 Marks)

Rep. $1.024802591 \times 3000 = 3,074.407773$
12M. $1.025288457 \times 3000 = 3,075.865$

Select B

Question 2 (5 Marks)

The following information is for YOUR Company;
Net Income (Profit) = \$85,000
Sales are \$800,000
The pay-out ratio is 40%
The Capital Structure is 0.45D + 0.55E = 1
The CIR ratio is 5.0

a) Calculate the Retained Earnings (Dollar amount). (1 Mark)

$85,000 \times 0.6 = 51,000$

b) Calculate the ROA. (1.5 Mark)

$ROA = \frac{NI}{TA} = \frac{85,000}{4,000,000} = 0.02125$

$CIR = \frac{TH}{D} = 5$
 $TH = 800,000 \times 5$
 $TH = 4,000,000$

c) Calculate the ROE. (1.5 Mark)

$ROE = \frac{NI}{TE} = \frac{85,000}{2,200,000} = 0.038636$
 $E = 2,200,000$
 $0.45D + 0.55E = 4,000,000$

d) Calculate the Internal Growth Rate. (1 Mark)

$$G = \frac{ROA \times R}{(1 - ROA \times R)} = \frac{85,000 \times 6}{400,000} = \frac{0.01275}{(1 - 0.01275)} = \frac{0.01275}{0.98725} = 0.012914662$$

Question 3 (7 Marks)

Deborah is planning to purchase a house for \$400,000. She will apply a \$50,000 down payment on the house. The bank is quoting an annual mortgage loan rate of 5.25% with an amortization period of 25 years. This is a Canadian mortgage loan.

a) Calculate the monthly payment on this mortgage. (3 Marks)

$$PV = 12 \quad N = 300 \quad PMT = 2,085.713069$$

$$C/Y = 7 \quad Y/Y = 5.25$$

$$FV = 0$$

$$PV = -350,000$$

b) Calculate the Interest paid on this mortgage loan over the entire 300 months. (1 Mark)

$$INT = 275,713.9192$$

$$P_1 = 1$$

$$P_2 = 300$$

c) Calculate the principal repaid during year 3 only. (1 Mark)

$$P_1 = 25 \quad PRINC = 7,783.118562$$

$$P_2 = 96$$

d) Set-up a loan amortization schedule for these 2 Periods. (2 Marks)

Period	Beginning Balance	Total Monthly Payment	Interest Paid	Principal Paid	Ending Balance
18	339,950.455	2,085.71	1,471.222	614.487	339,336.0143
19	339,336.0143	2,085.71	1,468.61%	617.10	338,718.9143

Question 4 (3 Marks)

If the discount rate for the following cash flows has an annual rate of 4% compounded monthly, what is the **FUTURE VALUE** of these cash flows at the end of year 6? Show all calculations on following page (3 Marks)

YEARS	CASH FLOW
0	500
1	500
2	200
3	600
4	0
5	1,000
6	0

$$\left(1 + \frac{0.04}{12}\right)^{12 \times 6} - 1 = EAR$$

$$1.040741543 - 1$$

$$= 0.040741543$$

$$CF_0 = 500$$

$$CF_1 = 500$$

$$CF_2 = 200$$

$$CF_3 = 600$$

$$CF_4 = 0$$

$$CF_5 = 1000$$

$$CF_6 = 0$$

$$NPV = + 2,516.336079$$

$$FV = 3,197.613639$$

Question 5 (8 Marks)

ASSUME;

Next year's sales are projected to increase by 20% "Percentage of sales' approach" – All costs are proportional to sales in the pro forma Statement. Financial statements provided below

Sales are at full capacity and the Pay-Out Ratio is 45%.

Management would like to know how much they need to borrow externally if any.

Make sure to clearly indicate the amounts on the tables provided below - Realistic approach where management decides where to apply ALL external borrowing on All debt and owner's equity.

INCOME STATEMENT & PRO FORMA INCOME STATEMENT (\$)			
	BASE YEAR (2009)	PRO FORMA (2010)	
ACCOUNTS			
SALES	\$8,000	9600	
ADMINISTRATIVE COSTS	5,500	6600	
DEPRECIATION	1,500	1800	
EBIT	1000	1200	
TAX (30%)	300	360	
NET INCOME	700	840	
DIVIDENDS	.45	378	
RETAINED EARNINGS	.55	462	

BALANCE SHEET & PRO FORMA BALANCE SHEET (\$)					
	BASE YEAR 2009	PRO FORMA 2010	ACCOUNTS	BASE YEAR 2009	PRO FORMA 2010
ACCOUNTS	2009	2010	ACCOUNTS	2009	PRO FORMA 2010
CASH	1,500	1800	A/P	2,500	2500
A/R	3,000	3600	N/P	1,500	1500
INVENTORY	1,000	1200	TOTAL CURRENT LIABILITIES	4,000	4000
TOTAL CURRENT ASSETS	5,500	6,600	LONG TERM DEBT	2,500	2500
PLANT & EQUIPMENT	15,000	18000	OWNER'S EQUITY		
GOODWILL	1,500	1800	COMMON STOCK	7,000	7000
			RETAINED EARNINGS	8,500	462 8962
TOTAL ASSETS	22,000		TOTAL LIABILITIES & OWNER'S EQUITY	22,000	22462
			EFN		3938
			Pro Forma Total Liabilities & Owner equity		26400

a) Complete the above Income Statement and the Pro Forma Income Statement. (2 Marks)

b) Complete the above Balance Sheet and Pro Forma Balance Sheet. (3 Marks)

c) Calculate the CIR. (1 Mark)

$$\frac{FA}{FS} = \frac{22,000}{8000} = 2.75$$

d) Using the information from the above tables, and if the Company expects to maintain the same D/E ratio for next year and cannot issue equity, calculate the EFN using the Finance approach not using Financial Statements. Show all calculations. (Sustainable growth EFN approach) (2 Marks)

$$Q^* = A \times Q - \left[\left[P_{SR} \times (1+g) \right] + \left[\left[P_{SR} \times (1+g) \right] \times D/E \right] \right]$$

D/E = $\frac{6500}{15500} = 0.419354839$

$$22,000 \times 2 - \left[\left[0.875 \times 8000 \times 0.55 \times 1.2 \right] + \left[6.0875 \times 8000 \times 0.55 \times 1.2 \right] \times \frac{419354839}{4839} \right]$$

$$44,000 - \left[\left[462 \right] + \left[462 \times 419354839 \right] \right]$$

$$44,000 - \left[462 + 193,7419356 \right]$$

$$44,000 - \left[655,7419356 \right]$$

$$Q^* = 3,744,258,664$$

Foot 2 "B"

Answer Key

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

BUSINESS FINANCE
FIN2304

TEST 2 - VERSION C

MARCH 2011

TIME: 1:20 hours

WEIGHT 30%

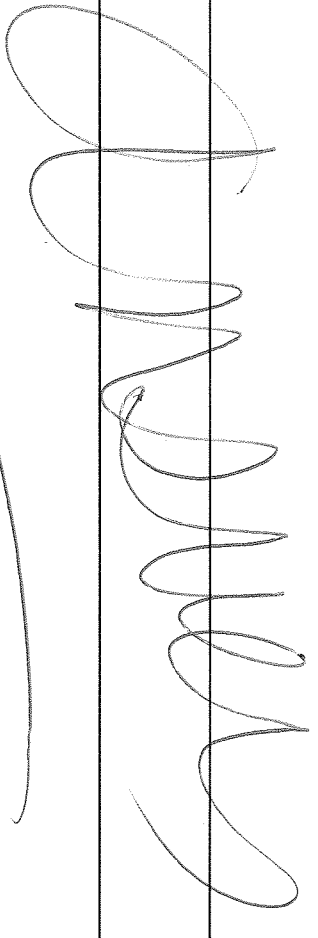
INSTRUCTOR:

Stephanie Christink, Scott McBride, Ildebrando A. de A. Lucas

STUDENT'S NAME: _____

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INSTRUCTIONS:

PART A:

MULTIPLE CHOICE QUESTIONS

(WEIGHT 30%)

- 1) CHOOSE THE MOST APPROPRIATE ANSWER.
- 2) PLACE YOUR ANSWER ON THE COMPUTER SHEET
- 3) THERE ARE TWENTY (20) QUESTIONS

PART B:

QUESTIONS AND PROBLEMS

(WEIGHT 70%)

- 1) DO ALL QUESTIONS ON THE TEST PAPER.
- 2) SHOW ALL FORMULAS AND/OR CALCULATOR ENTRIES
- 3) ROUND ALL ANSWERS TO FOUR (4) DECIMAL PLACES
- 4) THERE ARE FIVE (5) QUESTIONS

Out of 25:

TOTAL 100%

Question 1 (7 Marks)

Susana is planning to purchase a house for \$350,000. She will apply a \$50,000 down payment on the house. The bank is quoting an annual mortgage loan rate of 5.65% with an amortization period of 25 years. This is a Canadian mortgage loan.

a) Calculate the monthly payment on this mortgage. (3 Marks)

$PV = 300,000$
 $FV = 0$
 $n = 300$
 $i = 5.65\%$

$PMT = 1,857.453645$

b) Calculate the Interest paid on this mortgage loan over the entire 300 months. (1 Marks)

$N = 300$
 $NY = 5.65$
 $PV = -300,000$
 $FV = 0$
 $P_1 = 1$
 $P_2 = 300$

Interest = 257,236.0936

c) Calculate the principal repaid during year 3 only. (1 Mark)

$P_1 = 25$
 $P_2 = 36$
 $FV = 6,348.987458$

d) Set-up a loan amortization schedule for these 2 Periods. (2 Marks)

Period	Beginning Balance	Total Monthly Payment	Interest Paid	Principal Paid	Ending Balance
18	291859.0528	1857.4536	1358.2685	499.18509	291359.867
19	291359.867	1857.4536	1355.9152	501.53841	290,858.3586

Question 2 (3 Marks)

If the discount rate for the following cash flows has an annual rate of 3.5% compounded monthly, what is the FUTURE VALUE of these cash flows at the end of year 6? Show all calculations on following page (3 Marks)

YEARS	CASH FLOW
0	800
1	0
2	1,200
3	1,400
4	0
5	1,000
6	500

1.035566953
 $NPV = 4,424.720455$
 $FV = 5,457.012326$

Question 3 (2 Marks)

If you had two investments, (A), and (B) that you could invest for a period of 1 year;
You can either invest \$3,000 in (A) that pays an annual rate of 2.45% compounded continuously, or
You can invest \$3,000 in (B) that pays an annual rate of 2.5% compounded monthly. Which investment
would you choose? Make sure to include, at least, 4 decimals and show all calculation. (2 Marks)

$$e^{0.0245} = 1.024802591 = 3,074.407773$$
$$1.025^{12} = 1.025188457 = 3,075.865371$$

Select B

Question 4 (8 Marks)

ASSUME:

Next year's sales are projected to increase by 15% "Percentage of sales' approach" – All costs are proportional to sales in the pro forma Statement. Financial statements provided below

Sales are at full capacity and the Pay-Out Ratio is 55%.

Management would like to know how much they need to borrow externally if any.

Make sure to clearly indicate the amounts on the tables provided below - Realistic approach where management decides where to apply ALL external borrowing on All debt and owner's equity.

INCOME STATEMENT & PRO FORMA INCOME STATEMENT (\$)			
	BASE YEAR (2009)	PRO FORMA (2010)	
ACCOUNTS			
SALES	\$16,000	18400	
ADMINISTRATIVE COSTS	9,500	10925	
DEPRECIATION	2,500	2875	
EBIT	4000	4600	
TAX (30%)	1200	1380	
NET INCOME	2800	3220	
DIVIDENDS	1540	1771	
RETAINED EARNINGS	1260	1449	

BALANCE SHEET & PRO FORMA BALANCE SHEET (\$)					
	BASE YEAR 2009	PRO FORMA 2010	ACCOUNTS	BASE YEAR 2009	PRO FORMA 2010
ACCOUNTS	2009	2010	ACCOUNTS	2009	PRO FORMA 2010
CASH	1,500	1725	A/P	3,000	3,600
A/R	3,000	3450	N/P	1,000	1,000
INVENTORY	1,000	1150	TOTAL CURRENT LIABILITIES	4,000	4,000
TOTAL CURRENT ASSETS	5,500	6325			
			LONG TERM DEBT	4,500	4,500
PLANT & EQUIPMENT	8,000	9200	OWNER'S EQUITY		
GOODWILL	1,500	1725	COMMON STOCK	4,000	4,000
			RETAINED EARNINGS	2,500	3949 2,500+1449
TOTAL ASSETS	15,000		TOTAL LIABILITIES & OWNER'S EQUITY	15,000	16449
			EFN		801
			Pro Forma Total Liabilities & Owner equity		17250.
	PRO FORMA TOTAL ASSETS	17,250			

a) Complete the above Income Statement and the Pro Forma Income Statement. (2 Marks)

b) Complete the above Balance Sheet and Pro Forma Balance Sheet. (3 Marks)

c) Calculate the CIR. (1 Mark)

$$\frac{FA}{TA} = \frac{15000}{16000} = 0.9375$$

d) Using the information from the above tables, and if the Company expects to maintain the same D/E ratio for next year and cannot issue equity, calculate the EFN using the Finance approach not using Financial Statements. Show all calculations. (Sustainable growth EFN approach) (2 Marks)

$$\begin{aligned}
 Q^* &= A \times g \left[\frac{PSR \times (1+g)}{D/E} \right] + \left[\frac{PSR \times (1+g)}{D/E} \right] \\
 &= 15000 \times 1.15 - \left[\frac{0.175 \times 16000 \times 0.45 \times 1.15}{1.307692308} \right] + \left[\frac{175 \times 16000 \times 0.45 \times 1.15}{1.307692308} \right] \\
 &= 22250 - [1,449 + 1,894.846154] \\
 &= 22250 - [3,343.846154] \\
 &= 21,093.84654 \text{ extra they can borrow but do not need.}
 \end{aligned}$$

Question 5 (5 Marks)

The following information is for US Company;

Net Income (Profit) = \$55,000

Sales are \$500,000

The pay-out ratio is 45%

The Capital Structure is 0.40D + 0.60E = 1

The CIR ratio is 4.0

a) Calculate the Retained Earnings (Dollar amount). (1 Mark)

$$RE = 55,000 \times 0.55 = 30,250$$

b) Calculate the ROA. (1.5 Mark)

$$\text{ROA} = \frac{\text{NI}}{\text{TA}} = \frac{55,000}{2,000,000}$$

$$= 0.0275$$

or
2.75%

$$.4D + .6E =$$

$$\text{CIR} = \frac{\text{TH}}{\text{TE}} = 4.0$$

$$= \text{TH} = \text{TE} \times 4.0$$

$$= \text{TH} = 500,000 \times 4$$

$$\text{TH} = 2,000,000$$

c) Calculate the ROE. (1.5 Mark)

$$\text{ROE} = \frac{\text{NI}}{\text{TE}} = \frac{55,000}{1,200,000}$$

$$= 0.045833333$$

$$\approx 4.58\%$$

$$.6E = \text{TH}$$

$$.6E = 2,000,000$$

$$E = 1,200,000$$

d) Calculate the Internal Growth Rate. (1 Mark)

$$\text{ROA} \times R = \frac{55,000}{2,000,000} \times .55$$

$$\frac{\text{ROA} \times R}{1 - (\text{ROA} \times R)} = \frac{55,000}{2,000,000} \times .55$$

$$= \frac{(.0275 \times .55)}{1 - (.0275 \times .55)}$$

$$= \frac{0.015125}{1 - 0.015125}$$

$$= \frac{0.015125}{0.984875}$$

$$= 0.015357279$$

$$\approx 1.5357279\%$$

test 2 "C"

Answer Key

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