

TOMSK POLYTECHNIC UNIVERSITY

**FINANCIAL MANAGEMENT
Workbook**

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To the Student

This workbook has been written to help you in your study of Financial Management. It includes important facets of the course and will help you to focus on key concepts and ideas. You can use the textbook as a relevant material when solving problems. The workbook will help you to develop problem-solving skills and focus on important problems.

Learn to use the workbook. The material in this workbook is presented in accordance with sections and chapters of the text book. Section Problems on Financial Management are presented according to the following plan:

1. Evaluating Financial Performance
2. Financial Planning and Forecasting
3. Capital Budgeting Analysis

Everyday work on problems will help you to develop the necessary practical skills in Financial Statements Analysis, Financial Planning and Capital Budgeting Analysis. The problems presented in this workbook must be solved either on your own or with teacher's help.

The author welcomes your suggestions for improvements of future editions of this workbook.

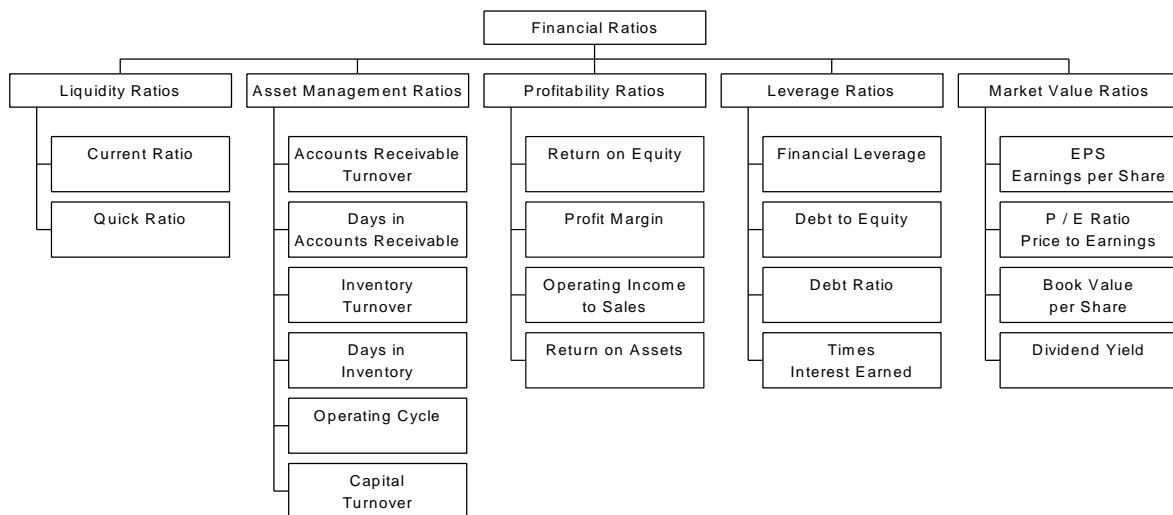
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Section I: Evaluating Financial Performance

Financial Ratios



Liquidity Ratios

Current Ratio

$$\frac{\text{Current Assets}}{\text{Current Liabilities}}$$

Quick Ratio

$$\frac{\text{Liquid Assets}}{\text{Current Liabilities}}$$

Asset Management Ratios

Accounts Receivable Turnover

$$\frac{\text{Net Sales}}{\text{Average Accounts Receivable}}$$

Days in Accounts Receivable

$$\frac{\text{Period under Review}}{\text{Accounts Receivable Turnover}}$$

Inventory Turnover

$$\frac{\text{Cost of Sales}}{\text{Average Inventory}}$$

Days in Inventory

$$\frac{\text{Period under Review}}{\text{Inventory Turnover}}$$

Operating Cycle

$$\text{Days in Accounts Receivable} + \text{Days in Inventory}$$

Capital Turnover

$$\frac{\text{Net Sales}}{\text{Interest Bearing Debt} + \text{Shareholders' Equity}}$$

Profitability Ratios

R/E Ratio (Return on Equity)

$$\frac{\text{Net Income}}{\text{Average Shareholders' Equity}}$$

Profit Margin

$$\frac{\text{Net Income}}{\text{Sales}}$$

Operating Income to Sales

$$\frac{\text{Operating Income}}{\text{Sales}}$$

Return on Assets

$$\frac{\text{Net Income}}{\text{Average Total Assets}}$$

Leverage Ratios

Financial Leverage

$$\frac{\text{Assets}}{\text{Equity}}$$

Debt to Equity Ratio

$$\frac{\text{Total Liabilities}}{\text{Shareholders' Equity}}$$

Debt Ratio

$$\frac{\text{Total Liabilities}}{\text{Total Assets}}$$

Times Interest Earned

$$\frac{\text{Earnings Before Interest \& Taxes}}{\text{Interest Expense}}$$

Market Value Ratios

EPS (Earnings Per Share)

$$\frac{\text{Earnings Available to Common Shareholders}}{\text{Number of Common Shareholders Outstanding}}$$

P/E Ratio (Price to Earnings)

$$\frac{\text{Price of Stock}}{\text{Earnings per Share}}$$

Book Value Per Share

$$\frac{\text{Net Assets Available to Common Shareholders*}}{\text{Outstanding Common Shares}}$$

* Calculated as Total Equity less Preferred Equity

Dividend Yield

$$\frac{\text{Dividends per Share}}{\text{Price of Stock}}$$

Problems

General Input Data:

Balance Sheet (Dec 31 2002)

Assets		Liabilities and Stockholders' equity	
Current Assets		Current Liabilities	
Cash	\$ 9 800	Accounts Payable	\$ 39 200
Marketable Securities	\$ 3 200	Note Payable	\$ 18 300
Accounts Receivable	\$ 115 300	Other Current Liabilities	\$ 13 200
Inventories	\$ 167 000	Total Current Liabilities	\$ 70 700
Other Current Assets	\$ 400		
Total Current Assets	\$ 295 700	Long-Term Liabilities	
		Debentures	\$ 127 800
		Other Long-Term Debt	\$ 3 200
		Total Long-Term Liabilities	\$ 131 000
		Total Liabilities	\$ 201 700
		Stockholders' Equity	
Fixed Assets		Preferred Stock	\$ 20 000
Land, Plant and Equipment	\$ 258 200	Common Stock	\$ 240 000
Intangibles	\$ 28 800	Retained Earnings	\$ 121 000
Total Fixed Assets	\$ 287 000	Total Stockholders' Equity	\$ 381 000
Total Assets	\$ 582 700	Total Liabilities and Stockholders' Equity	\$ 582 700

Income Statement (31 Dec 2002)

Sales	\$ 992 000
Cost of Goods Sold	\$ 879 800
Gross Profit	\$ 112 200
Selling and Administrative Expenses	\$ 41 700
Operating Profit (EBIT)	\$ 70 500
Interest Expenses	\$ 12 500
Income before Taxes (EBT)	\$ 58 000
Taxes	\$ 17 400
Net Income (Profit) (NI)	\$ 40 600

Retained Earnings Statement

Retained Earnings at the beginning of the period	\$ 110 400
Net Income	\$ 40 600
Less Dividends to Stockholders	\$ 30 000
Retained Earnings at the end of the period	\$ 121 000

Problems

Instructions

The following problems are based on the Balance Sheet, Income Statement and Retained Earnings Statement given in the General Input Data. Use these financial statements to fill in the blanks under the Input Data section for each problem and calculate all financial indicators marked with "?". Some problems will require indicators calculated in the above problems. Use the space under each problem to do financial calculation.

Problem 1

Input Data:

Net Income	
Assets	
Sales	
Equity	

Calculate

Asset Turnover

?

Profit Margin

?

Financial Leverage

?

Return on Equity

?

Problem 2

Input data:

	Equity	Profit
January	\$385 000	\$7 600
April	\$405 000	\$8 600
July	\$354 000	\$13 000
October	\$375 000	\$11 000
January	\$395 000	\$8 000

Calculate:

Average Annual Equity

?

Annual Profit

?

Return on Equity

?

%

Problem 3

Input data:

Share Price	\$20	
First group of shareholders owns (shares)	9250	N1
Second group of shareholders owns (shares)	6000	N2
Third group of shareholders owns (shares)	3800	N3
Return		

Calculate:

Total number of shares	?	
N1%	?	
N2%	?	
N3%	?	
Equity	?	
Return on Equity	?	%

Problem 4

Input data:

Cash		Accounts payable	
Marketable securities		Salaries payable	\$10 560
Accounts receivable		Other current accruals	
Inventories			
Prepaid Items	\$320		
Other Current Assets			

Calculate:

Current Assets	?	
Liquid Assets	?	
Current Liabilities	?	
Current Liquidity Ratio	?	
Quick Liquidity Ratio	?	

Problem 5

Input data:

Cash		Estimated Monthly Outflow	\$150 000
Marketable Securities			
Accounts Receivable			

Calculate:

Defensive Interval

?

Problem 6

Input data:

Period under review (days)	
Sales	
Allowance for sales returns	15%
Cost of Sales	\$879 800
Accounts Receivable	
Inventory balance	
Interest bearing Debt	
Shareholders Equity	

Calculate:

Net Sales	?	
Accounts Receivable turnover	?	
Days in Accounts Receivable	?	
Inventory Turnover	?	
Days in Inventory	?	
Operating Cycle	?	
Capital turnover	?	

Problem 7

Input data:

Net Sales	
EBIT (Earnings Before Interest and Taxes)	
Average Total Assets	

Calculate:

Operating Income to Sales

?

Return on Assets

?

Problem 8

Input data:

EBIT	
Interest Expenses	
Taxes	
Return on Equity	
Total Liabilities	
Financial Leverage	

Calculate:

Net Income	?	
Equity	?	
Debt to Equity	?	
Assets	?	
Debt Ratio	?	
Times Interest Earned	?	

Problem 9

Input data:

Total Earnings Available to Shareholders 50% of Net Profit	
Price of a Share	
Number of Common Shares Outstanding	18 050
Number of Preferred Shares Outstanding	1 000
Dividend Yield for Preferred Shares	7%
Net Assets Available to All Shareholders	

Calculate:

Preferred Shares Dividends	?	
Common Shares Dividends	?	
Earnings per Common Share	?	
P/E Ratio	?	
Net Assets Available to Common Shareholders	?	
Book Value per Common Share	?	

Calculation Page

Section I

Terminology Test 1

Match each number of the given term with the best suitable translation number. Write down your answers in the Terminology Test Form (in the end of the Work Book).

1.	Financial ratios	1.	Авансируемые средства (рента, аренда оборудования)
2.	Financial balances	2.	Дебиторская задолженность
3.	Financial statement	3.	Доход, прибыль, поступления.
4.	Earnings	4.	Коэффициент текущей ликвидности
5.	Equity	5.	Коэффициенты ликвидности
6.	Net Income	6.	Краткосрочные обязательства
7.	Average Shareholders Equity	7.	Легко реализуемые ценные бумаги
8.	Retained Earnings	8.	Наличные товары, материально производственные запасы
9.	Profit margin	9.	Нераспределенная прибыль
10.	Sales	10.	Оборачиваемость всех активов
11.	Asset turnover	11.	Оборотные активы, оборотные средства (денежные средства, вложенные в запасы сырья, материалов, топлива, готовой продукции, а также счета в банках)
12.	Financial Leverage	12.	Объем продаж
13.	Liquidity Ratios	13.	Собственный капитал
14.	Current Liquidity Ratio	14.	Средний акционерный капитал
15.	Current Assets	15.	Уровень прибыли или Рентабельность
16.	Current Liabilities	16.	Финансовая отчетность
17.	Accounts Receivable	17.	Финансовые балансы, фин. Сальдо
18.	Marketable securities	18.	Финансовые коэффициенты
19.	Inventories	19.	Финансовый левередж или показатель использования заемных средств
20.	Prepaid items	20.	Чистый доход

Section I

Terminology Test 2

Match each number of the given term with the best suitable translation number. Write down your answers in the Terminology Test Form (in the end of the Work Book).

1. Accounts payable	1. Creditor, lender, tenderer = кредитор
2. Notes payable	2. Банкротство, несостоятельность
3. Salaries Payable	3. Векселя к оплате
4. Taxes Payable	4. Возвращенный товар
5. Current Maturities	5. Дебитор
6. Current Accruals	6. Доход от продаж
7. Insolvency problems	7. Задолженность по оплате труда
8. Acid Test Ratio (Quick Ratio)	8. Коэффициент критической оценки = коэффициент быстрой ликвидности.
9. Operating Cash Flow	9. Коэффициенты управления активами
10. Cash Flow Statement	10. Кредиторская задолженность (счета к оплате)
11. Asset Management Ratios	11. Налоги подлежащие к уплате в бюджет
12. Accounts Receivable Turnover	12. Норма возвращенного товара (поправка на возвращенный товар)
13. Sales Return	13. Оборачиваемость дебиторской задолженности
14. Sales Returns	14. Отчет об оборотных средствах (баланс денежных средств)
15. Allowance for Sales Returns	15. Период оборота дебиторской задолженности
16. Days in Accounts Receivable	16. Период оборота материальных запасов
17. Cost of Sales	17. Себестоимость реализованной продукции
18. Days in Inventory	18. Срок платежа по векселю
19. Debtor	19. Текущие начисления
20. Debtee	20. Текущий поток наличности (денежных средств)

Section I

Terminology Test 3

Match each number of the given term with the best suitable translation number. Write down your answers in the Terminology Test Form (in the end of the Work Book).

1. Operating income	1. Балансовая стоимость
2. EBIT	2. Восстановительная стоимость
3. Return on Assets	3. Дивиденды по привилегированным акциям
4. Times interest earned	4. Доля нетто-капитала на одну акцию. Книжная стоимость акций
5. Market value ratios	5. Доход на акцию
6. EPS	6. Доходность акций (дивиденды / стоимость акций)
7. Preferred stock Dividends	7. Играющий на повышение (о рынке ценных бумаг)
8. Common shares outstanding	8. Играющий на понижение, снижающийся (о рынке ценных бумаг)
9. P / E Ratio	9. Коэффициент отношения цены акции к доходу.
10. Bullish	10. Коэффициенты рыночной стоимости
11. Bearish	11. Ликвидационная стоимость
12. Book value	12. Нетто-капитал, остаточная стоимость капитала
13. Book Value per Share	13. Номинальная стоимость
14. Face (nominal) value	14. Общие и административные расходы
15. Depreciated value	15. Обыкновенные акции, выпущенные в оборот
16. Replacement value	16. Операционная прибыль (доход)
17. Balance sheet value	17. Остаточная стоимость
18. Salvage value	18. Отношение балансовой прибыли к процентным издержкам (Балансовая рентабельность процентных издержек)
19. Dividend yield	19. Прибыль до уплаты процентов и налогов (Балансовая прибыль)
20. G & A expenses	20. Рентабельность активов

Section II: Financial Planning and Forecasting

Problems

Instructions

The following 13 problems are based on the financial statements (Balance Sheet, Income Statement, Retained Earnings Statement) given in Section 1. All the problems are connected and aimed at developing budgeted financial statements and determining of EFR. Some problems will refer to the data, calculated in previous problems, therefore accomplishing problems in sequence is preferable.

Problem 1

Refer to financial statements for the year 2002 and use trend method of forecasting to fill in the cells with "?" mark in the table below.

Table 1

Year	Sales	
1999	\$ 752 000	
2000	\$ 820 000	
2001	\$ 898 000	
2002	?	
Sales forecast for 2003	?	

Problem 2

Refer to financial statements for the year 2002 and use the percent of sales method of forecasting to fill in the cells with "?" mark in the table below.

Accounts Receivable in 2002	?	
Accounts Payable in 2002	?	
Accounts Receivable in 2003	?	
Accounts Payable in 2003	?	

Problem 3

Your company is producing "mouse pads". You sell "mouse pads" at a price of \$4 per 1 "mouse pad". Refer to financial statements for the year 2002 and develop Production Budget for the year 2003

Production Budget 2003	
Planned Sales (Units)	?
Desired Ending Inventory	1 500
Total Units	?
Less Beginning Inventory	3 000
Planned Production	?

Problem 4

Production of mouse pads requires 100 grams of rubber foam and plastic.

Calculate Materials Budget for 2003

Materials Budget 2003	
Materials required for production (kg)	?
Desired Ending Inventory (kg)	5 000,0
Total Materials (kg)	?
Less Beginning Inventory (kg)	7 000,0
Total Materials Required (kg)	?
Foam and Plastic Cost per kilogram	\$7
Total Materials Purchases	?

Problem 5

**Production of 1 mouse pad requires 30 seconds of human labor. Hourly Labor rate is \$10.
Calculate Labor Budget for 2003**

Labor Budget	
Seconds per unit	30
Estimated Production Hours	?
Hourly Labor rate	\$10
Total Labor Cost	?

Problem 6

Calculate the Overhead Budget for 2003

Overhead Budget 2003		
Indirect Labor Costs (15 % of direct labor costs)	15%	?
Utilities	5%	?
Depreciation	5%	?
Maintenance	2%	?
Insurance and Taxes	5%	?
Total Overhead Costs		?

Problem 7

Calculate Cost of Goods Sold Budget for 2003

COST OF GOODS SOLD BUDGET 2003			
	Direct materials	Work in Progress	Finished Inventory
Beginning Inventory	? \$	\$21 440	\$53 600
Purchases	? \$		
Less Ending Inventory	? \$		
Materials Required	? \$		
Direct Labor	? \$		
Overhead	? \$		
Total Manufacturing Costs	? \$	→	
Total Work In Progress		? \$	
Less Ending Inventory		\$17 152	
Cost of Goods Manufactured		? \$	→
Cost of Goods Available for Sale			
Less Ending Inventory			\$42 880
Cost of Goods Sold			? \$

Problem 8

Calculate Marketing Budget for 2003 using the percent of Sales method.

MARKETING BUDGET		
	% of Sales	
Marketing Personnel	8,00%	?
Advertising & Promotion	5,00%	?
Marketing Research	2,00%	?
Travel & Personal Expenses	7,00%	?
Total Marketing Expenses		?

Problem 9

Calculate Marketing Budget for 2003 using the percent of Sales method.

GENERAL & ADMINISTRATIVE BUDGET		
	% of Sales	
Management Personnel	12,00%	?
Accounting Personnel	6,00%	?
Legal Personnel	5,00%	?
Technology Personnel	7,00%	?
Rent & Utilities	4,00%	?
Supplies	6,00%	?
Miscellaneous	2,00%	?
Total G & A Expenses		?

Problem 10

Calculate Budgeted Income Statement for 2003

BUDGETED INCOME STATEMENT 2003	
Revenues	?
Less Cost of Goods Sold	?
Gross Profit	?
Less Marketing	?
Less G & A	?
Operating Income	?
Less Interest on Debt (same as last year)	?
Income Before Taxes	?
Taxes @ 37.5%	?
Net Income	?

Problem 11

Calculate Budgeted Income Statement for 2003

ESTIMATED RETAINED EARNINGS	
Beginning Balance	?
Budgeted Net Income	?
Less Estimated Dividends (same as last year)	?
Ending Retained Earnings	?

Problem 12

Calculate Change in Fixed Assets for 2003

CHANGE IN FIXED ASSETS	
Beginning Balance	?
New Acquisitions (Capital Expenditures)	?
Purchase New Office Equipment	\$20 000
Replace the Press Machine	\$20 000
Less Depreciation for the Year 10%	?
Ending Fixed Assets	?

Problem 13

Calculate Budgeted Balance Sheet for 2003

BUDGETED BALANCE SHEET		
Cash	1% of Sales	?
Accounts Receivable	12% of Sales	?
Inventory	17% of Sales	?
Prepaid Expenses	same as in prev. period	?
Fixed Assets		?
Total Assets		?
Accounts Payable	4% of Sales	?
Note Payable	2% of Sales	?
Current Portion of LT Debt	Principal Paid	\$6000
Total Current Liabilities		?
Long Term Debt	same as in prev. period	?
Total Liabilities		?
Preferred Stock	Unchanged	?
Common Stock	Unchanged	?
Retained Earnings		?
Total Equity		?
Total Liab & Equity		?
External Financing Required		?

Calculation Page

Section II

Terminology Test 1

Match each number of the given term with the best suitable translation number. Write down your answers in the Terminology Test Form (in the end of the Work Book).

1.	to allocate	1.	Cost that depends on sales
2.	Goal	2.	Estimation = глубокая оценка
3.	Budgeted financial statements	3.	Fin. Consequences = финансовые последствия
4.	Operating plan	4.	Incapability = Неспособность, неудача, провал
5.	Financial plan	5.	Objective, aim
6.	to encompass	6.	To fulfill, to accomplish, to carry out, to enforce
7.	Financial implications	7.	To include = включать в себя, заключать
8.	Failure	8.	To prosper, to flourish = процветать, преуспевать
9.	to thrive	9.	Бюджетный Финансовый отчет
10.	Thorough assessment	10.	Накладные расходы
11.	to implement	11.	Остатки на счетах
12.	Economic slow down	12.	Отчет о прибылях и убытках
13.	Economic stagnation	13.	Производственный план
14.	Economic boom	14.	Распределять, размещать.
15.	Economic stabilization	15.	Финансовый план
16.	Economic collapse	16.	Экономическая стабилизация
17.	Account balances	17.	Экономический бум
18.	Variable cost	18.	Экономический застой
19.	Income Statement	19.	Экономический крах
20.	Overhead (costs, expenses, charges)	20.	Экономический спад

Section II

Terminology Test 2

Match each number of the given term with the best suitable translation number. Write down your answers in the Terminology Test Form (in the end of the Work Book).

1.	Less Beginning Inventory	1.	Period under review = отчетный период
2.	To comprise	2.	To encompass, to be included in = содержать, заключать в себе.
3.	Production rental equipment	3.	To support, to uphold = поддерживать
4.	Depreciation	4.	Арендное производственное оборудование
5.	Wear and tear	5.	За вычетом запасов на начало периода
6.	Accumulated depreciation	6.	Износ основного капитала
7.	Direct Materials	7.	Износ, амортизация (amortization)
8.	Direct Labor	8.	Истощать, изнашивать
9.	Work in Progress	9.	Курс, направление, тенденция (syn: vogue)
10.	Reporting period	10.	Накопленный износ / амортизация
11.	Operating Expenses	11.	Незавершенная продукция, производство
12.	Miscellaneous	12.	Оборотные средства
13.	Financing expenses	13.	Основные материалы
14.	Acquisition	14.	Основные средства
15.	Fixed Assets	15.	Приобретение
16.	Circulating Assets	16.	Разный, смешанный, разнообразный
17.	To deplete	17.	Текущие (операционные) издержки
18.	To sustain	18.	Тратта, расходование денег
19.	Expenditure	19.	Труд основных (производственных) рабочих
20.	Trend	20.	Финансовые расходы (ex. Процентные платежи)

Section II

Terminology Test 3

Match each number of the given term with the best suitable translation number. Write down your answers in the Terminology Test Form (in the end of the Work Book).

1.	To fluctuate with sales	1.	Incorrect, erroneous, faulty, wrong = неточный, ошибочный
2.	Surplus	2.	Influence = влияние
3.	Deficit	3.	To depend on sales = зависеть от продаж
4.	Excess	4.	Ассигнования, отчисления из бюджета
5.	Access	5.	Главная книга (бухгалтерская)
6.	Principal Paid	6.	Доступ
7.	Subject to revision	7.	Излишек
8.	EFR	8.	Надежные источники
9.	Disbursement	9.	Назначать, определять, устанавливать вероятность
10.	Payroll	10.	Налог на добавленную стоимость
11.	Inaccurate	11.	Недостаток (Дефицит)
12.	To assign probabilities	12.	Необходимые источники внешнего финансирования
13.	Relevant sources	13.	Обзор, исследование
14.	Survey	14.	Оплаченная основная сумма долга
15.	Impact	15.	Платежная ведомость
16.	Value Added tax	16.	Подлежит пересмотру
17.	Budget allocation	17.	Порог, Нижняя граница, пороговое значение
18.	Thresholds	18.	Расходы, издержки
19.	General Ledger	19.	Упрощать (модернизировать, рационализировать)
20.	To streamline	20.	Чрезмерность, превышение, избыток

Section III: Capital Budgeting Analysis

Formulas

Calculating Future Value

$$FV = PV (1 + i)^n$$

Calculating Present Value

$$PV = \frac{FV}{(1 + i)^n}$$

Calculating Future Value of Cash Flows

$$FV_{\tilde{N}F} = \sum_{t=1}^n C_t (1 + i)^{n-t}$$

Calculating Present Value of Cash Flows

$$PV_{\tilde{N}F} = \sum_{t=1}^n \frac{C_t}{(1 + i)^t}$$

Calculating Future Value of Annuity

$$FV_A = PMT \sum_{t=1}^n (1 + i)^{n-t}$$

Calculating Present Value of Annuity

$$PV_A = PMT \sum_{t=1}^n \frac{1}{(1 + i)^t}$$

Calculating Net Present Value

NPV for uneven Cash Flows

$$NPV_{CF} = -I_0 + \sum_{t=1}^n \frac{CF_t}{(1+i)^t}$$

NPV for annuity

$$NPV_A = -I_0 + PMT \sum_{t=1}^n \frac{1}{(1+i)^t}$$

NPV for Investment Flows and Cash Flows

$$NPV_{IF \& CF} = -\sum_{t=1}^n \frac{IF_t}{(1+i)^t} + \sum_{t=1}^n \frac{CF_t}{(1+i)^t}$$

Problems

Problem 1

You are producing basketballs. You have an option of buying or producing bladders for basketballs. Costs to produce one bladder:

Direct Materials	\$4	per item
Direct Labor	5	per item
Variable Overhead	2	per item
Fixed Overhead	3	per item
Total Costs	14	per item
Current Production	1 000	items
Maximum Production	1 200	items

You need

Amount of Bladders	150	items
Supplier's Price	\$12	per item

Make a decision whether you are going to buy or produce basketball bladders?

Explain why:

Problem 2

You are considering dropping product BCL-3 from your product line because the Income Statement for BCL-3 shows the following:

Sales Revenues	\$200 000
Cost of Goods Sold- Variable	\$130 000
Cost of Goods Sold – Fixed	\$ 50 000
Operating Expenses – Variable	\$ 50 000
Operating Expenses – Fixed	\$ 20 000
Income (Loss)	\$(50 000)

What should you do? (Continue / Discontinue product)

Why?

Problem 3

You are planning to receive \$2000 in 5 years. **Calculate the Present Value of \$2000 if the inflation rate is 11%**

Present Value =	
-----------------	--

Problem 4

You want to make a \$1000 investment. You are considering two investment projects. According to project-A you will receive \$1800 in 4 years. If you invest your money in project-B you will receive \$2400 in 6 years. Interest rate is 15%. Which project will you choose to invest in?

Tick the right box below and explain why you chose it?

Project-A	<input type="checkbox"/>
-----------	--------------------------

Project-B	<input type="checkbox"/>
-----------	--------------------------

Bank Savings Account	<input type="checkbox"/>
----------------------	--------------------------

Why: _____

Problem 5

You made an investment in a project. Now you are expecting uneven cash flows for the next 5 years.

Year	1	2	3	4	5	total
Cash Flow	100	200	100	200	100	700

You have an option of receiving these cash flows either in the beginning of in the end of each year.

Discount Rate = 10%

Calculate Present Value of Cash Flows for each of the variants of receipt.

Years	1	2	3	4	5	total
Present Value of CF receipt in the beginning						
Present Value of CF receipt in the end						

Which variant is preferable? _____

Why? _____

Problem 6

You want to invest \$900. There are 3 projects under consideration. All projects provide certain cash flows (see the table below). Average Interest Rate = 10%.

Year	1	2	3	4	5	total
Cash Flow 1	\$100	\$200	\$300	\$400	\$500	\$1 500
Cash Flow 2	\$300	\$300	\$300	\$300	\$300	\$1 500
Cash Flow 3	\$500	\$400	\$300	\$200	\$100	\$1 500

1. Calculate Present Value of Annuity for each project.

	Project 1	Project 2	Project 3
Present Value			

2. Which project will you choose?

Project 1	Project 2	Project 3	Bank Savings Account

Problem 7

You plan on purchasing a new cutting machine for \$33,000.

Installation Costs will be \$3,000.

You expect a \$2,000 net increase in working capital.

This investment will reduce your annual operating costs by \$10,000 and \$1500 a year in maintenance savings.

The new machine will require \$1200 each year for technical support.

You will depreciate the machine over 5 years under the straight-line method of depreciation with an expected salvage value of \$10,000.

The effective tax rate is 35%.

Input Data:

New Machine Price	\$ 33 000
Installation Costs	\$ 3 000
Service Period	5
Depreciation	straight-line method
Proceeds from selling the old machine	\$ 9 000
Increase in Working Capital	\$ 2 000
Annual Savings in Operating Costs	\$ 10 000
Annual Savings in Maintenance	\$ 1 500
Annual Costs for Technical Support	\$ 1 200
Salvage Value	\$ 10 000
Taxes	35%
Discount Rate	10,00%

1. Calculate Relevant Project Cash Flow

Annual Savings in Operating Costs	
Annual Savings in Maintenance	
Annual Costs for Technical Support	
Annual Depreciation	
Revenues	
Taxes	
Net Project Income	
Add Back Depreciation (noncash item)	
Relevant Project Cash Flow	

2. Calculate Terminal Cash Flow for Capital Project

Estimated Salvage amount	
Taxes	
Terminal Cash Flow	

3. Calculate Net Investment (NI)

Acquisition Cost	
Installation Cost	
Increase in Working Capital	
Proceeds from selling the old Machine	
Taxes on selling the old machine	
Net Proceeds on selling the old Machine	
Net Investment (NI)	

4. Calculate Present Value of Relevant and Terminal Cash Flows & Total Present Value (PV RCF & PV TCF & TPV)

Period	1	2	3	4	5	total
RCF						
PV RCF						

Present Value of Relevant Cash Flows

Present Value of Terminal Cash Flows

Total Present Value

5. Calculate Net Present Value of a Project (NPV)

Net Investment Outflow	NI	
Total Present Value of Inflows	TPV CF	
Net Present Value	NPV	

6. Calculate Simple Payback Period and Discounted Payback Period (PP & DPP)

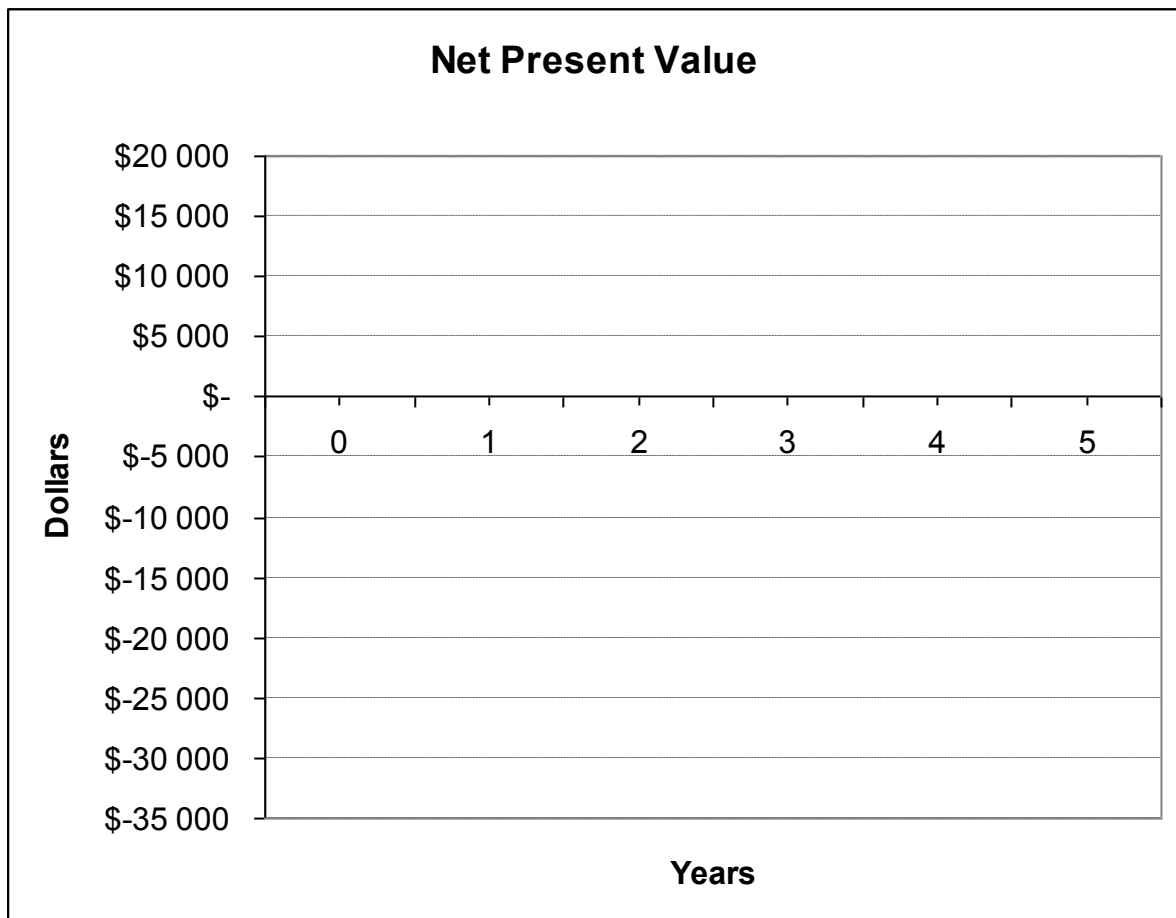
n	0	1	2	3	4	5	Total
RCF							

-NI+RCF							
PV RCF							
- NI+PVR CF							

Draw two graphs:

(1) NPV calculated based on RCF

(2) NPV calculated based on PV RCF



Payback Period	
Discounted Payback Period	

7. Calculate Internal Rate of Return

Reminder: IRR = discount rate at which NPV = 0

Discount Rate = 12%

Period	1	2	3	4	5	total
RCF						
PV RCF						

Present Value of Terminal Cash Flows

Net Investment

Net Present Value (- NI+PV RCF+PV TCF)

Discount Rate = 13%

Period	1	2	3	4	5	total
RCF						
PV RCF						

Present Value of Terminal Cash Flows

Net Investment

Net Present Value (- NI+PV RCF+PV TCF)

Discount Rate = 14%

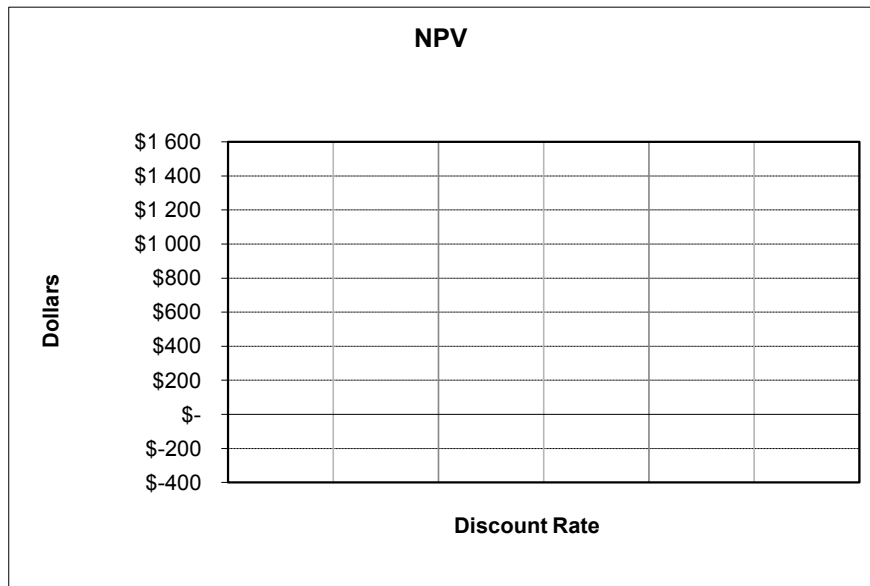
Period	1	2	3	4	5	total
RCF						
PV RCF						

Present Value of Terminal Cash Flows

Net Investment

Net Present Value (- NI+PV RCF+PV TCF)

Draw a graph of NPV depending on the Discount rate



Internal Rate of Return (IRR)

Calculation Page

Section III Terminology Test 1

Match each number of the given term with the best suitable translation number. Write down your answers in the Terminology Test Form (in the end of the Work Book).

1.	Capital budgeting	1.	1) Составление смет капитальных вложений и их окупаемости 2) Экономический анализ намечаемых капитальных вложений (Анализ капвложений).
2.	Expansion	2.	Consequencies, effect, results = последствия, выводы, результаты
3.	Facilities	3.	Expenses, costs
4.	Outlays	4.	Hard, combined = сложный, составной
5.	Implications	5.	Installations Здания, оборудование, мощности
6.	To commit to	6.	Result, consequence = результат, следствие, исход
7.	To back out	7.	Salvage = ликвидационная стоимость
8.	Present Value	8.	Subordination system = Иерархия
9.	(DCF)	9.	Therefore, hence = Поэтому, следовательно
10.	Decision Analysis	10.	Анализ принятия решений
11.	Option Pricing	11.	Брать на себя обязательства
12.	Complex	12.	Дисконтированный поток наличности
13.	Variable	13.	Использование производственных мощностей
14.	Outcome	14.	Модель принятия решения с множеством характеристик
15.	Tax considerations	15.	Настоящая, текущая стоимость
16.	Disposal Value	16.	Оплата / возмещение налогов
17.	Capacity Utilization	17.	Отказаться от участия, уклониться
18.	Consequently	18.	Переменная
19.	Hierarchy	19.	Расширение
20.	Multiple Attribute Decision Model	20.	Стоимостная оценка вариантов / альтернатив

Section III

Terminology Test 2

Match each number of the given term with the best suitable translation number. Write down your answers in the Terminology Test Form (in the end of the Work Book).

1.	Decision Tree	1.	(Экон.) Сальдо, нетто
2.	Contingent claims	2.	Appropriateness = значимость, существенность, уместность
3.	To derive	3.	Keeping, care = обслуживание, уход, поддержание в исправном состоянии
4.	assumptions	4.	suppositions = предположения, допущения
5.	To defer	5.	To change
6.	To alter	6.	To delay, to postpone, to put off
7.	Bundle	7.	To obtain, to draw, to get = получать, извлекать
8.	Timing options	8.	Аннуитет
9.	Abandonment options	9.	Возможности для роста
10.	Growth options	10.	Возможности отказа
11.	Option Values	11.	Возможные выгоды
12.	Time value of money	12.	возможные, случайные требования
13.	Opportunity Costs (Losses)	13.	Временная стоимость денег
14.	Annuity	14.	Временные возможности
15.	Relevancy	15.	Выделенные накладные расходы
16.	Working capital	16.	Дерево решений
17.	Allocated Overheads	17.	Издержки (потери) вследствие не использования благоприятных возможностей.
18.	Sunk Costs	18.	Невозвратимые издержки (расходы, которые не могут быть восполнены)
19.	Net	19.	Оборотные средства, оборотный капитал
20.	Maintenance	20.	Связка, вязанка, пучок, пакет, большое количество

Section III Terminology Test 3

Match each number of the given term with the best suitable translation number. Write down your answers in the Terminology Test Form (in the end of the Work Book).

1.	Assembly machine	1.	To remove, to expel = устранять, исключать, ликвидировать
2.	Present value	2.	Where you have a basis for a decision, but you have a possibility of several outcomes
3.	Salvage value	3.	Where you have no basis for a decision
4.	Terminal Cash flow	4.	Внутренняя норма прибыли проекта
5.	Net proceeds	5.	Границы, рамки, пределы
6.	(NPV)	6.	Дисконтированная окупаемость
7.	(IRR)	7.	Конечный, заключительный поток наличности
8.	To eliminate	8.	Ликвидационная стоимость
9.	Discounted Pay-back	9.	Набор
10.	Discounted rate	10.	Настоящая (текущая) стоимость
11.	Criterion	11.	Обращаться к чему-либо, ссылаться на что-либо
12.	To refer	12.	Отклонение, сдвиг, тенденция
13.	Consideration	13.	Признак, критерий
14.	Scope	14.	Прилипать, придерживаться
15.	Uncertainty	15.	Сборочный агрегат
16.	Risk	16.	Ставка дисконтирования
17.	Improvement	17.	Суждение, размышление, взгляд, мнение
18.	Mix	18.	Улучшение, усовершенствование
19.	To adhere	19.	Чистая приведенная стоимость
20.	Bias	20.	Чистый доход, вырученная сумма

Terminology Test FORM

	Section 1			Section 2			Section 3		
	Test 1	Test 2	Test 3	Test 1	Test 2	Test 3	Test 1	Test 2	Test 3
term	translation number			translation number			translation number		
1.									
2.									
3.									
4.									
5.									
6.									
7.									
8.									
9.									
10.									
11.									
12.									
13.									
14.									
15.									
16.									
17.									
18.									
19.									
20.									

Section Final Exam FORM

Question	Section 1	Section 2	Section 3
	Answer	Answer	Answer
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

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Financial Management
Workbook

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