Financial Management Pillar

Managerial Level Paper

P7 – Financial Accounting and Tax Principles

25 May 2006 – Thursday Afternoon Session

Instructions to candidates

You are allowed three hours to answer this question paper.
You are allowed 20 minutes reading time **before the examination begins** during which you should read the question paper and, if you wish, make annotations on the question paper. However, you will **not** be allowed, **under any circumstances**, to open the answer book and start writing or use your calculator during this reading time.
You are strongly advised to carefully read ALL the question requirements before attempting the question concerned (that is, all parts and/or sub-questions). The requirements for questions in Sections B and C are highlighted in a dotted box.
Answer the ONE compulsory question in Section A. This contains 21 sub-questions and is on pages 2 to 8.
Answer the SIX compulsory sub-questions in Section B on pages 10 to 13.
Answer ONE of the two questions in Section C on pages 14 to 17.
Maths Tables and Formulae are provided on pages 19 to 21. These pages are detachable for ease of reference.
Write your full examination number, paper number and the examination subject title in the spaces provided on the front of the examination answer book. Also write your contact ID and name in the space provided in the right hand margin and seal to close.
Tick the appropriate boxes on the front of the answer book to indicate which questions you have answered.

TURN OVER

> ### Instructions for answering Section A:
>
> The answers to the twenty one sub-questions in Section A should ALL be written in your answer book.
>
> Your answers should be clearly numbered with the sub-question number and then ruled off, so that the markers know which sub-question you are answering. **For multiple choice questions, you need only write the sub-question number and the letter of the answer option you have chosen**. You do not need to start a new page for each sub-question.
>
> For sub-questions **1.2**, **1.8**, **1.9**, **1.17**, **1.20** and **1.21** you should show your workings as marks are available for the method you use to answer these sub-questions.

Question One

1.1   If an entity regularly fails to pay its suppliers by the normal due dates, it may lead to a number of problems:

   (i)   Having insufficient cash to settle trade payables;

   (ii)   Difficulty in obtaining credit from new suppliers;

   (iii)   Reduction in credit rating;

   (iv)   Settlement of trade receivables may be delayed.

Which TWO of the above could arise as a result of exceeding suppliers' trade credit terms?

A   (i) and (ii)

B   (i) and (iii)

C   (ii) and (iii)

D   (iii) and (iv)

(2 marks)

1.2 CI purchased equipment on 1 April 2002 for $100,000. The equipment was depreciated using the reducing balance method at 25% per year. CI's balance sheet date is 31 March.

Depreciation was charged up to and including 31 March 2006. At that date, the recoverable amount was $28,000.

Calculate the impairment loss on the equipment according to IAS 36 *Impairment of Assets.*

(3 marks)

1.3 List THREE possible reasons why governments set deadlines for filing returns and/or paying taxes.

(3 marks)

1.4 IAS 1 *Presentation of Financial Statements* encourages an analysis of expenses to be presented on the face of the income statement. The analysis of expenses must use a classification based on either the nature of expense, or its function, within the entity such as:

(i)   Raw materials and consumables used;

(ii)   Distribution costs;

(iii)   Employee benefit costs;

(iv)   Cost of sales;

(v)   Depreciation and amortisation expense.

Which of the above would be disclosed on the face of the income statement if a manufacturing entity uses analysis based on function?

A   (i), (iii) and (iv)

B   (ii) and (iv)

C   (i) and (v)

D   (ii), (iii) and (v)

(2 marks)

1.5 The International Accounting Standards Board's (IASB) *Framework for the Preparation and Presentation of Financial Statements* (Framework) provides definitions of the elements of financial statements. One of the elements defined by the framework is "expenses".

In no more than **35** words, give the IASB Framework's definition of expenses.

(2 marks)

Section A continues on the next page

The following data are given for sub-questions 1.6 and 1.7 below

CN started a three year contract to build a new university campus on 1 April 2004. The contract had a fixed price of $90 million.

CN incurred costs to 31 March 2006 of $77 million and estimated that a further $33 million would need to be spent to complete the contract.

CN uses the percentage of cost incurred to date to total cost method to calculate stage of completion of the contract.

1.6   Calculate revenue earned on the contract to 31 March 2006, according to IAS 11 *Construction Contracts*.

(2 marks)

1.7   State how much gross profit/loss CN should recognise in its income statement for the year ended 31 March 2006, according to IAS 11 *Construction Contracts*.

(2 marks)

1.8   CY had the following amounts for 2003 to 2005:

Year ended 31 December:	*2003*	*2004*	*2005*
	$	*$*	*$*
Accounting depreciation for the year	1,630	1,590	1,530
Tax depreciation allowance for the year	2,120	1,860	1,320

At 31 December 2002, CY had the following balances brought forward:

	$
Cost of property, plant and equipment qualifying for tax depreciation	20,000
Accounting depreciation	5,000
Tax depreciation	12,500

CY had no non-current asset acquisitions or disposals during the period 2003 to 2005.

Assume the corporate income tax rate is 25% for all years.

Calculate the deferred tax provision required by IAS 12 *Income Taxes* at 31 December 2005.

(3 marks)

The following data are given for sub-questions 1.9 and 1.10 below

CS acquired a machine, using a finance lease, on 1 January 2004. The machine had an expected useful life of 12,000 operating hours, after which it would have no residual value.

The finance lease was for a five-year term with rentals of $20,000 per year payable in arrears. The cost price of the machine was $80,000 and the implied interest rate is 7·93% per year. CS used the machine for 2,600 hours in 2004 and 2,350 hours in 2005.

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1.9 Using the actuarial method, calculate the non-current liability and current liability figures required by IAS 17 *Leases* to be shown in CS's balance sheet at 31 December 2005.

(3 marks)

- -

1.10 Calculate the non-current asset – property, plant and equipment net book value that would be shown in CS's balance sheet at 31 December 2005. Calculate the depreciation charge using the machine hours method.

(2 marks)

1.11 IAS 14 *Segment Reporting* requires an entity to select a primary and secondary segment reporting format.

CL has a number of different product groups and most of its trade is in Europe.

CQ has one major product and trades in a wide range of countries and cultural environments.

Which ONE of the following will CL and CQ select as primary and secondary segment formats?

	Primary reporting format		*Secondary reporting format*	
	CL	CQ	CL	CQ
A	Business segments	Business segments	Geographical segments	Geographical segments
B	Geographical segments	Geographical segments	Business segments	Business segments
C	Geographical segments	Business segments	Business segments	Geographical segments
D	Business segments	Geographical segments	Geographical segments	Business segments

(2 marks)

1.12 The external auditor has a duty to report on the truth and fairness of the financial statements and to report any reservations. The auditor is normally given a number of powers by statute to enable the statutory duties to be carried out.

List THREE powers that are usually granted to the auditor by statute.

(3 marks)

Section A continues on the next page

1.13 A full imputation system of corporate income tax is one where an entity is taxable on

A all of its income and gains whether they are distributed or not. The shareholder is liable for taxation on all dividends received.

B all of its income and gains whether they are distributed or not, but all the underlying corporation tax is passed to the shareholder as a tax credit.

C all of its income and gains whether they are distributed or not, but only part of the underlying corporation tax is passed to the shareholder as a tax credit.

D its retained profits at one rate and on its distributed profits at another (usually lower) rate of tax.

(2 marks)

1.14 Which ONE of the following items would CM recognise as subsequent expenditure on a non-current asset and capitalise it as required by IAS 16 *Property, Plant and Equipment?*

A CM purchased a furnace five years ago, when the furnace lining was separately identified in the accounting records. The furnace now requires relining at a cost of $200,000. When the furnace is relined it will be able to be used in CM's business for a further five years.

B CM's office building has been badly damaged by a fire. CM intends to restore the building to its original condition at a cost of $250,000.

C CM's delivery vehicle broke down. When it was inspected by the repairers it was discovered that it needed a new engine. The engine and associated labour costs are estimated to be $5,000.

D CM closes its factory for two weeks every year. During this time, all plant and equipment has its routine annual maintenance check and any necessary repairs are carried out. The cost of the current year's maintenance check and repairs was $75,000.

(2 marks)

1.15 A conservative policy for financing working capital is one where short-term finance is used to fund

A all of the fluctuating current assets, but no part of the permanent current assets.

B all of the fluctuating current assets and part of the permanent current assets.

C part of the fluctuating current assets and part of the permanent current assets.

D part of the fluctuating current assets, but no part of the permanent current assets.

(2 marks)

1.16 CU manufactures clothing and operates in a country that has a Value Added Tax system (VAT). The VAT system allows entities to reclaim input tax that they have paid on taxable supplies. VAT is at 15% of the selling price at all stages of the manufacturing and distribution chain.

CU manufactures a batch of clothing and pays expenses (taxable inputs) of $100 plus VAT. CU sells the batch of clothing to a retailer CZ for $250 plus VAT. CZ unpacks the clothing and sells the items separately to various customers for a total of $600 plus VAT.

How much VAT do CU and CZ each have to pay in respect of this one batch of clothing?

(2 marks)

1.17 CT uses the Miller-Orr cash management model to help manage cash flows. The management accountant has agreed with the directors that the lower limit for cash will be $2,500.

The current rate of interest that CT pays is 0·025% per day. Each transaction costs CT $30. CT's daily cash flows have been measured and the variance calculated as $300,000.

Calculate, for CT, the Miller-Orr return point and upper limit.

(3 marks)

1.18 After a bill of exchange has been accepted, there are a number of possible actions that the drawer could take.

Which ONE of the following is NOT a possible course of action?

A   Ask the customer for immediate payment.

B   Discount the bill with a bank.

C   Hold the bill until the due date and then present it for payment.

D   Use the bill to settle a trade payable.

(2 marks)

1.19 Calculate the economic order quantity (EOQ) for the following item of inventory:

- Quantity required per year 32,000 items;
- Order costs are $15 per order;
- Inventory holding costs are estimated at 3% of inventory value per year;
- Each unit currently costs $40.

(2 marks)

Section A continues on the next page

1.20 On 31 March 2006, CH had a credit balance brought forward on its deferred tax account of $642,000. There was also a credit balance on its corporate income tax account of $31,000, representing an over-estimate of the tax charge for the year ended 31 March 2005.

CH's taxable profit for the year ended 31 March 2006 was $946,000. CH's directors estimated the deferred tax provision required at 31 March 2006 to be $759,000 and the applicable income tax rate for the year to 31 March 2006 as 22%.

Calculate the income tax expense that CH will charge in its income statement for the year ended 31 March 2006, as required by IAS 12 *Income Taxes*.

(3 marks)

1.21 CX purchased $10,000 of unquoted bonds when they were issued by Z. CX now wishes to sell the bonds to B. The bonds have a coupon rate of 7% and will repay their face value at the end of five years. Similar bonds have a yield to maturity of 10%.

Calculate the current market price for the bonds.

(3 marks)

(Total for Question One = 50 marks)

End of Section A

Section B starts on page 10

[the indicative time for this Section is 54 minutes]

ANSWER *ALL* SIX SUB-QUESTIONS. EACH SUB-QUESTION IS WORTH 5 MARKS.

Question Two

(a)   CW owns 40% of the equity shares in Z, an entity resident in a foreign country. CW receives a dividend of $45,000 from Z; the amount received is after deduction of withholding tax of 10%. Z had before tax profits for the year of $500,000 and paid corporate income tax of $100,000.

Required:

(i)   Explain the meaning of "withholding tax" and "underlying tax."

(2 marks)

(ii)   Calculate the amount of withholding tax paid by CW.

(1 mark)

(iii)   Calculate the amount of underlying tax that relates to CW's dividend.

(2 marks)

(Total for sub-question (a) = 5 marks)

Section B continues on the opposite page

(b) CB is an entity specialising in importing a wide range of non-food items and selling them to retailers. George is CB's president and founder and owns 40% of CB's equity shares:

- CB's largest customer, XC, accounts for 35% of CB's revenue. XC has just completed negotiations with CB for a special 5% discount on all sales.

- During the accounting period, George purchased a property from CB for $500,000. CB had previously declared the property surplus to its requirements and had valued it at $750,000.

- George's son, Arnold, is a director in a financial institution, FC. During the accounting period, FC advanced $2 million to CB as an unsecured loan at a favourable rate of interest.

Required:

Explain, with reasons, the extent to which each of the above transactions should be classified and disclosed in accordance with IAS 24 *Related Party Disclosures* in CB's financial statements for the period.

(Total for sub-question (b) = 5 marks)

(c) C is a small developing country which passed legislation to create a recognised professional accounting body two years ago. At the same time as the accounting body was created, new regulations governing financial reporting requirements of entities were passed. However, there are currently no accounting standards in C.

C's government has asked the new professional accounting body to prepare a report setting out the country's options for developing and implementing a set of high quality local accounting standards. The government request also referred to the work of the IASB and its International Financial Reporting Standards.

Required:

As an advisor to the professional accounting body, outline THREE options open to C for the development of a set of high quality local accounting standards. Identify ONE advantage and ONE disadvantage of each option.

(Total for sub-question (c) = 5 marks)

Section B continues on the next page

(d) CD is a manufacturing entity that runs a number of operations including a bottling plant that bottles carbonated soft drinks. CD has been developing a new bottling process that will allow the bottles to be filled and sealed more efficiently.

The new process took a year to develop. At the start of development, CD estimated that the new process would increase output by 15% with no additional cost (other than the extra bottles and their contents). Development work commenced on 1 May 2005 and was completed on 20 April 2006. Testing at the end of the development confirmed CD's original estimates.

CD incurred expenditure of $180,000 on the above development in 2005/06.

CD plans to install the new process in its bottling plant and start operating the new process from 1 May 2006.

CD's balance sheet date is 30 April.

Required:

(i) Explain the requirements of IAS 38 *Intangible Assets* for the treatment of development costs.

(3 marks)

(ii) Explain how CD should treat its development costs in its financial statements for the year ended 30 April 2006.

(2 marks)

(Total for sub-question (d) = 5 marks)

(e) CR issued 200,000 $10 redeemable 5% preference shares at par on 1 April 2005. The shares were redeemable on 31 March 2010 at a premium of 15%. Issue costs amounted to $192,800.

Required:

(a) Calculate the total finance cost over the life of the preference shares.

(2 marks)

(b) Calculate the annual charge to the income statement for finance expense, as required by IAS 39 *Financial Instruments: Recognition and Measurement,* for each of the five years 2006 to 2010. Assume the constant annual rate of interest as 10%.

(3 marks)

(Total for sub-question (e) = 5 marks)

(f) The following is an extract from the trial balance of CE at 31 March 2006:

	$000	$000
Administration expenses	260	
Cost of sales	480	
Interest paid	190	
Interest bearing borrowings		2,200
Inventory at 31 March 2006	220	
Property, plant and equipment at cost	1,500	
Property, plant and equipment, depreciation to 31 March 2005		540
Distribution costs	200	
Revenue		2,000

Notes:

(i) Included in the closing inventory at the balance sheet date was inventory at a cost of $35,000, which was sold during April 2006 for $19,000.

(ii) Depreciation is provided for on property, plant and equipment at 20% per year using the reducing balance method. Depreciation is regarded as cost of sales.

(iii) A member of the public was seriously injured while using one of CE's products on 4 October 2005. Professional legal advice is that CE will probably have to pay $500,000 compensation.

Required:

Prepare CE's Income Statement for the year ended 31 March 2006 down to the line "profit before tax".

(Total for sub-question (f) = 5 marks)

(Total for Section B = 30 marks)

End of Section B

Section C starts on page 14

Question Three

The financial statements of CJ for the year to 31 March 2006 were as follows:

Balance Sheets at	31 March 2006		31 March 2005	
	$000	$000	$000	$000
Non-current tangible assets				
Property	19,160		18,000	
Plant and equipment	8,500		10,000	
Available for sale investments	1,500		2,100	
		29,160		30,100
Current assets				
Inventory	2,714		2,500	
Trade receivables	2,106		1,800	
Cash at bank	6,553		0	
Cash in hand	409		320	
		11,782		4,620
Total assets		40,942		34,720
Equity and liabilities				
Ordinary shares $0·50 each	12,000			7,000
Share premium	10,000			5,000
Revaluation reserve	4,200			2,700
Retained profit	3,009			1,510
		29,209		16,210
Non-current liabilities				
Interest bearing borrowings	7,000		13,000	
Provision for deferred tax	999	7,999	800	13,800
Current liabilities				
Bank overdraft	0		1,200	
Trade and other payables	1,820		1,700	
Corporate income tax payable	1,914		1,810	
		3,734		4,710
		40,942		34,720

Income Statement for the Year to 31 March 2006

	$000
Revenue	31,000
Cost of sales	(19,000)
Gross profit	12,000
Other income	200
Administrative expenses	(3,900)
Distribution costs	(2,600)
	5,700
Finance cost	(1,302)
Profit before tax	4,398
Income tax expense	(2,099)
Profit for the period	2,299

Additional information:

1. On 1 April 2005, CJ issued 10,000,000 $0·50 ordinary shares at a premium of 100%.

2. No additional available for sale investments were acquired during the year.

3. On 1 July 2005, CJ repaid $6,000,000 of its interest bearing borrowings.

4. Properties were revalued by $1,500,000 during the year.

5. Plant disposed of in the year had a net book value of $95,000; cash received on disposal was $118,000.

6. Depreciation charged for the year was properties $2,070,000 and plant and equipment $1,985,000.

7. The trade and other payables balance includes interest payable of $650,000 at 31 March 2005 and $350,000 at 31 March 2006.

8. Dividends paid during the year, $800,000 comprised last year's final dividend plus the current year's interim dividend. CJ's accounting policy is not to accrue proposed dividends.

9. Other income comprises:

	$
Dividends received	180,000
Gain on disposal of available for sale investments	20,000
	200,000

    Dividends receivable are not accrued.

10. Income tax expense comprises:

	$
Corporate income tax	1,900,000
Deferred tax	199,000
	2,099,000

Required:

Prepare CJ's Cash-flow statement for the year ended 31 March 2006, in accordance with IAS 7 *Cash-flow Statements*.

(Total for Question Three = 20 marks)

Section C continues on the next page

Question Four

CK is an entity that sells computer spare parts and peripherals to computer retail stores. The entity's sales and purchases accrue evenly throughout the year and inventory is managed in such a way as to give a constant inventory level throughout the year.

CK had the following figures for the year ended 31 March 2006:

	$000
Revenue from credit sales during the year	6,192
Purchases on credit during the year	4,128
Trade receivables balance at 31 March 2006	1,083
Trade payables balance at 31 March 2006	344
Inventory balance at 31 March 2006	1,020
Cash balance at 31 March 2006	622

The directors wanted working capital management improved and commissioned a consultant to prepare a report on working capital management in CK. The consultant's report indicated that efficiency savings were possible and, if the recommendations were implemented, the following changes in outstanding days would be achieved:

Trade receivables reduced to 45 days.

Suppliers would be willing to wait a total of 40 days for payment.

Inventory could be reduced by 40% (from 31 March 2006 $ value levels) without having an adverse impact on sales.

The budgets for the year to 31 March 2007 have been commenced, but are incomplete. Budgeted revenue from credit sales is based on the year to 31 March 2006 figure, plus a price increase of 10% from 1 April 2006 and a reduction of an estimated 3% in volume caused by the price increase.

Cost of sales is budgeted at the same percentage of credit sales revenue as the year to 31 March 2006.

	$000	
Salaries and wages are budgeted at	620	for the year
Other operating expenses budget is	432	for the year
Budgeted capital expenditure is	2,500	

The consultant's report recommended that $1,500,000 of the proposed purchase of non-current tangible assets could be leased instead of purchased. The terms of the lease would be five payments of $400,000 each, payable in advance of 1 April each year, commencing on 1 April 2006.

The lease would be classified as a finance lease by IAS 17 *Leases*.

The implicit interest rate is 16·875%.

Required:

(a) Calculate the following for CK at 31 March 2006:

- Trade receivables days outstanding;

- Trade payables days outstanding;

- Inventory days outstanding.

(Note: You should base your calculations on a 365 day year)

(3 marks)

(b) Prepare a cash budget for the year to 31 March 2007 based on the budgeted data and assuming CK implements the efficiency changes recommended by the consultant from 1 April 2006.

(10 marks)

(c) Explain the effect on CK's cash budget if it decides to lease $1,500,000 of the non-current assets, instead of purchasing them.
(Note: You are **not** required to recalculate CK's cash budget)

(2 marks)

(d) Comment on any possible difficulties that CK may encounter when implementing the efficiency changes.

(5 marks)

(Note: All workings should be to the nearest $000)

(Total for Question Four = 20 marks)

(Total for Section C = 20 marks)

End of Question Paper

Maths Tables and Formulae are on pages 19 to 21

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MATHS TABLES AND FORMULAE

Present value table

Present value of $1, that is $(1 + r)^{-n}$ where r = interest rate; n = number of periods until payment or receipt.

Periods	Interest rates (r)									
(n)	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
1	0.990	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909
2	0.980	0.961	0.943	0.925	0.907	0.890	0.873	0.857	0.842	0.826
3	0.971	0.942	0.915	0.889	0.864	0.840	0.816	0.794	0.772	0.751
4	0.961	0.924	0.888	0.855	0.823	0.792	0.763	0.735	0.708	0.683
5	0.951	0.906	0.863	0.822	0.784	0.747	0.713	0.681	0.650	0.621
6	0.942	0.888	0.837	0.790	0.746	0.705	0.666	0.630	0.596	0.564
7	0.933	0.871	0.813	0.760	0.711	0.665	0.623	0.583	0.547	0.513
8	0.923	0.853	0.789	0.731	0.677	0.627	0.582	0.540	0.502	0.467
9	0.914	0.837	0.766	0.703	0.645	0.592	0.544	0.500	0.460	0.424
10	0.905	0.820	0.744	0.676	0.614	0.558	0.508	0.463	0.422	0.386
11	0.896	0.804	0.722	0.650	0.585	0.527	0.475	0.429	0.388	0.350
12	0.887	0.788	0.701	0.625	0.557	0.497	0.444	0.397	0.356	0.319
13	0.879	0.773	0.681	0.601	0.530	0.469	0.415	0.368	0.326	0.290
14	0.870	0.758	0.661	0.577	0.505	0.442	0.388	0.340	0.299	0.263
15	0.861	0.743	0.642	0.555	0.481	0.417	0.362	0.315	0.275	0.239
16	0.853	0.728	0.623	0.534	0.458	0.394	0.339	0.292	0.252	0.218
17	0.844	0.714	0.605	0.513	0.436	0.371	0.317	0.270	0.231	0.198
18	0.836	0.700	0.587	0.494	0.416	0.350	0.296	0.250	0.212	0.180
19	0.828	0.686	0.570	0.475	0.396	0.331	0.277	0.232	0.194	0.164
20	0.820	0.673	0.554	0.456	0.377	0.312	0.258	0.215	0.178	0.149

Periods	Interest rates (r)									
(n)	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%
1	0.901	0.893	0.885	0.877	0.870	0.862	0.855	0.847	0.840	0.833
2	0.812	0.797	0.783	0.769	0.756	0.743	0.731	0.718	0.706	0.694
3	0.731	0.712	0.693	0.675	0.658	0.641	0.624	0.609	0.593	0.579
4	0.659	0.636	0.613	0.592	0.572	0.552	0.534	0.516	0.499	0.482
5	0.593	0.567	0.543	0.519	0.497	0.476	0.456	0.437	0.419	0.402
6	0.535	0.507	0.480	0.456	0.432	0.410	0.390	0.370	0.352	0.335
7	0.482	0.452	0.425	0.400	0.376	0.354	0.333	0.314	0.296	0.279
8	0.434	0.404	0.376	0.351	0.327	0.305	0.285	0.266	0.249	0.233
9	0.391	0.361	0.333	0.308	0.284	0.263	0.243	0.225	0.209	0.194
10	0.352	0.322	0.295	0.270	0.247	0.227	0.208	0.191	0.176	0.162
11	0.317	0.287	0.261	0.237	0.215	0.195	0.178	0.162	0.148	0.135
12	0.286	0.257	0.231	0.208	0.187	0.168	0.152	0.137	0.124	0.112
13	0.258	0.229	0.204	0.182	0.163	0.145	0.130	0.116	0.104	0.093
14	0.232	0.205	0.181	0.160	0.141	0.125	0.111	0.099	0.088	0.078
15	0.209	0.183	0.160	0.140	0.123	0.108	0.095	0.084	0.079	0.065
16	0.188	0.163	0.141	0.123	0.107	0.093	0.081	0.071	0.062	0.054
17	0.170	0.146	0.125	0.108	0.093	0.080	0.069	0.060	0.052	0.045
18	0.153	0.130	0.111	0.095	0.081	0.069	0.059	0.051	0.044	0.038
19	0.138	0.116	0.098	0.083	0.070	0.060	0.051	0.043	0.037	0.031
20	0.124	0.104	0.087	0.073	0.061	0.051	0.043	0.037	0.031	0.026

Cumulative present value of $1 per annum

Receivable or Payable at the end of each year for *n* years $\frac{1-(1+r)^{-n}}{r}$

Periods	Interest rates (*r*)									
(*n*)	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
1	0.990	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909
2	1.970	1.942	1.913	1.886	1.859	1.833	1.808	1.783	1.759	1.736
3	2.941	2.884	2.829	2.775	2.723	2.673	2.624	2.577	2.531	2.487
4	3.902	3.808	3.717	3.630	3.546	3.465	3.387	3.312	3.240	3.170
5	4.853	4.713	4.580	4.452	4.329	4.212	4.100	3.993	3.890	3.791
6	5.795	5.601	5.417	5.242	5.076	4.917	4.767	4.623	4.486	4.355
7	6.728	6.472	6.230	6.002	5.786	5.582	5.389	5.206	5.033	4.868
8	7.652	7.325	7.020	6.733	6.463	6.210	5.971	5.747	5.535	5.335
9	8.566	8.162	7.786	7.435	7.108	6.802	6.515	6.247	5.995	5.759
10	9.471	8.983	8.530	8.111	7.722	7.360	7.024	6.710	6.418	6.145
11	10.368	9.787	9.253	8.760	8.306	7.887	7.499	7.139	6.805	6.495
12	11.255	10.575	9.954	9.385	8.863	8.384	7.943	7.536	7.161	6.814
13	12.134	11.348	10.635	9.986	9.394	8.853	8.358	7.904	7.487	7.103
14	13.004	12.106	11.296	10.563	9.899	9.295	8.745	8.244	7.786	7.367
15	13.865	12.849	11.938	11.118	10.380	9.712	9.108	8.559	8.061	7.606
16	14.718	13.578	12.561	11.652	10.838	10.106	9.447	8.851	8.313	7.824
17	15.562	14.292	13.166	12.166	11.274	10.477	9.763	9.122	8.544	8.022
18	16.398	14.992	13.754	12.659	11.690	10.828	10.059	9.372	8.756	8.201
19	17.226	15.679	14.324	13.134	12.085	11.158	10.336	9.604	8.950	8.365
20	18.046	16.351	14.878	13.590	12.462	11.470	10.594	9.818	9.129	8.514

Periods	Interest rates (*r*)									
(*n*)	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%
1	0.901	0.893	0.885	0.877	0.870	0.862	0.855	0.847	0.840	0.833
2	1.713	1.690	1.668	1.647	1.626	1.605	1.585	1.566	1.547	1.528
3	2.444	2.402	2.361	2.322	2.283	2.246	2.210	2.174	2.140	2.106
4	3.102	3.037	2.974	2.914	2.855	2.798	2.743	2.690	2.639	2.589
5	3.696	3.605	3.517	3.433	3.352	3.274	3.199	3.127	3.058	2.991
6	4.231	4.111	3.998	3.889	3.784	3.685	3.589	3.498	3.410	3.326
7	4.712	4.564	4.423	4.288	4.160	4.039	3.922	3.812	3.706	3.605
8	5.146	4.968	4.799	4.639	4.487	4.344	4.207	4.078	3.954	3.837
9	5.537	5.328	5.132	4.946	4.772	4.607	4.451	4.303	4.163	4.031
10	5.889	5.650	5.426	5.216	5.019	4.833	4.659	4.494	4.339	4.192
11	6.207	5.938	5.687	5.453	5.234	5.029	4.836	4.656	4.486	4.327
12	6.492	6.194	5.918	5.660	5.421	5.197	4.988	7.793	4.611	4.439
13	6.750	6.424	6.122	5.842	5.583	5.342	5.118	4.910	4.715	4.533
14	6.982	6.628	6.302	6.002	5.724	5.468	5.229	5.008	4.802	4.611
15	7.191	6.811	6.462	6.142	5.847	5.575	5.324	5.092	4.876	4.675
16	7.379	6.974	6.604	6.265	5.954	5.668	5.405	5.162	4.938	4.730
17	7.549	7.120	6.729	6.373	6.047	5.749	5.475	5.222	4.990	4.775
18	7.702	7.250	6.840	6.467	6.128	5.818	5.534	5.273	5.033	4.812
19	7.839	7.366	6.938	6.550	6.198	5.877	5.584	5.316	5.070	4.843
20	7.963	7.469	7.025	6.623	6.259	5.929	5.628	5.353	5.101	4.870

FORMULAE

Valuation models

(i)   Future value of S, of a sum X, invested for n periods, compounded at $r\%$ interest: $S = X[1 + r]^n$

(ii)   Present value of $1 payable or receivable in n years, discounted at $r\%$ per annum:

$$PV = \frac{1}{[1 + r]^n}$$

(iii)   Present value of an annuity of $1 per annum, receivable or payable for n years, commencing in one year, discounted at $r\%$ per annum:

$$PV = \frac{1}{r}\left[1 - \frac{1}{[1 + r]^n}\right]$$

(iv)   Present value of $1 per annum, payable or receivable in perpetuity, commencing in one year, discounted at $r\%$ per annum:

$$PV = \frac{1}{r}$$

(v)   Present value of $1 per annum, receivable or payable, commencing in one year, growing in perpetuity at a constant rate of $g\%$ per annum, discounted at $r\%$ per annum:

$$PV = \frac{1}{r - g}$$

Inventory management

(i)   Economic Order Quantity

$$EOQ = \sqrt{\frac{2C_o D}{C_h}}$$

where: C_o =   cost of placing an order
          C_h =   cost of holding one unit in Inventory for one year
          D =   annual demand

Cash management

(i)   Optimal sale of securities, Baumol model:

$$\text{Optimal sale} = \sqrt{\frac{2 \times \text{Annual cash disbursements} \times \text{Cost per sale of securities}}{\text{interest rate}}}$$

(ii)   Spread between upper and lower cash balance limits, Miller-Orr model:

$$\text{Spread} = 3\left[\frac{\frac{3}{4} \times \text{transaction cost} \times \text{variance of cash flows}}{\text{interest rate}}\right]^{\frac{1}{3}}$$

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Financial Management Pillar

Managerial Level

P7 – Financial Accounting and Tax Principles

May 2006

Thursday Afternoon Session