Financial Management Pillar

Managerial Level Paper

P7 – Financial Accounting and Tax Principles

23 November 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 18 sub-questions and is on pages 2 to 7.
Answer the SIX compulsory sub-questions in Section B on pages 8 to 11.
Answer ONE of the two questions in Section C on pages 12 to 15.
Maths Tables and Formulae are provided on pages 17 to 19. 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.

P7 – Financial Accounting and Tax Principles

TURN OVER

SECTION A – 50 MARKS

[the indicative time for answering this Section is 90 minutes]

ANSWER *ALL* EIGHTEEN SUB-QUESTIONS

Instructions for answering Section A:

The answers to the eighteen 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 **1.5**, **1.13**, **1.16**, **1.17** and **1.18**, you should show your workings as marks are available for the method you use to answer these sub-questions.

Question One

1.1 Corporate residence for tax purposes can be determined in a number of ways, depending on the country concerned.

Which ONE of the following is NOT normally used to determine corporate residence for tax purposes?

A The country from which control of the entity is exercised.

B The country of incorporation of the entity.

C The country where management of the entity hold their meetings.

D The country where most of the entity's products are sold

(2 marks)

1.2 The process leading to the publication of an International Financial Reporting Standard (IFRS) has a number of stages.

List the THREE stages that normally precede the final issue of an IFRS.

(3 marks)

1.3 The International Accounting Standards Board's *Framework for the Preparation and Presentation of Financial Statements* defines five elements of financial statements. Three of the elements are asset, liability and income.

List the other TWO elements.

(2 marks)

1.4 IAS 14 *Segment Reporting* requires segment information to be disclosed by publicly quoted entities.

List THREE criteria identified by IAS 14 to define a reportable business or geographical segment.

(3 marks)

1.5 DS purchased a machine on 1 October 2002 at a cost of $21,000 with an expected useful economic life of six years, with no expected residual value. DS depreciates its machines using the straight line basis.

The machine has been used and depreciated for three years to 30 September 2005. New technology was invented in December 2005, which enabled a cheaper, more efficient machine to be produced; this technology makes DS's type of machine obsolete. The obsolete machine will generate no further economic benefit or have any residual value once the new machines become available. However, because of production delays, the new machines will not be available on the market until 1 October 2007.

Calculate how much depreciation DS should charge to its income statement for the year ended 30 September 2006, as required by IAS 16 *Property, Plant and Equipment.*

(3 marks)

1.6 In 1776, Adam Smith proposed that an acceptable tax should meet four characteristics. Three of these characteristics were certainty, convenience and efficiency.

Identify the FOURTH characteristic.

A Neutrality.

B Transparency.

C Equity.

D Simplicity.

(2 marks)

1.7 IAS 38 *Intangible Assets* sets out six criteria that must be met before an internally generated intangible asset can be recognised.

List FOUR of IAS 38's criteria for recognition.

(4 marks)

Section A continues on the next page

TURN OVER

1.8 DT's final dividend for the year ended 31 October 2005 of $150,000 was declared on 1 February 2006 and paid in cash on 1 April 2006. The financial statements were approved on 31 March 2006.

The following statements refer to the treatment of the dividend in the accounts of DT:

(i) The payment clears an accrued liability set up in the balance sheet as at 31 October 2005;

(ii) The dividend is shown as a deduction in the income statement for the year ended 31 October 2006;

(iii) The dividend is shown as an accrued liability in the balance sheet as at 31 October 2006;

(iv) The $150,000 dividend was shown in the notes to the financial statements at 31 October 2005;

(v) The dividend is shown as a deduction in the statement of changes in equity for the year ended 31 October 2006.

Which of the above statements reflect the correct treatment of the dividend?

A (i) and (ii)

B (i) and (iv)

C (iii) and (v)

D (iv) and (v)

(2 marks)

1.9 DZ recognised a tax liability of $290,000 in its financial statements for the year ended 30 September 2005. This was subsequently agreed with and paid to the tax authorities as $280,000 on 1 March 2006. The directors of DZ estimate that the tax due on the profits for the year to 30 September 2006 will be $320,000. DZ has no deferred tax liability.

What is DZ's income statement tax charge for the year ended 30 September 2006?

A $310,000

B $320,000

C $330,000

D $600,000

(2 marks)

1.10 An entity, DP, in Country A receives a dividend from an entity in Country B. The gross dividend of $50,000 is subject to a withholding tax of $5,000 and $45,000 is paid to DP. Country A levies a tax of 12% on overseas dividends.

Country A and Country B have both signed a double taxation treaty based on the OECD model convention and both apply the credit method when relieving double taxation.

How much tax would DP be expected to pay in Country A on the dividend received from the entity in Country B?

A $400

B $1,000

C $5,400

D $6,000

(2 marks)

The following data are given for sub-questions 1.11 and 1.12 below

Country D uses a value added tax (VAT) system whereby VAT is charged on all goods and services at a rate of 15%. Registered VAT entities are allowed to recover input VAT paid on their purchases.

Country E uses a multi-stage sales tax system, where a cumulative tax is levied every time a sale is made. The tax rate is 7% and tax paid on purchases is not recoverable.

DA is a manufacturer and sells products to DB, a retailer, for $500 excluding tax. DB sells the products to customers for a total of $1,000 excluding tax.

DA paid $200 plus VAT/sales tax for the manufacturing cost of its products.

1.11 Assume DA operates in Country D and sells products to DB in the same country.

Calculate the net VAT due to be paid by DA and DB for the products.

(2 marks)

1.12 Assume DA operates in Country E and sells products to DB in the same country.

Calculate the **total** sales tax due to be paid on all of the sales of the products.

(2 marks)

Section A continues on the next page

TURN OVER

1.13 The trade receivables ledger account for customer C shows the following entries:

		Debits $	Credits $
Balance brought forward		0	
10 June 06	Invoice 201	345	
19 June 06	Invoice 225	520	
27 June 06	Invoice 241	150	
3 July 06	Receipt 1009 – Inv 201		200
10 July 06	Invoice 311	233	
4 August 06	Receipt 1122 – Inv 225		520
6 August 06	Invoice 392	197	
18 August 06	Invoice 420	231	
30 August 06	Receipt 1310 – Inv 311		233
7 September 06	Invoice 556	319	
21 September 06	Receipt 1501 – Inv 392		197
30 September 06	Balance	845	

Prepare an age analysis showing the outstanding balance on a monthly basis for customer C at 30 September 2006.

(4 marks)

1.14 List the THREE criteria specified in IAS 37 *Provisions, Contingent Liabilities and Contingent Assets* that must be satisfied before a provision is recognised in the financial statements.

(3 marks)

1.15 DR makes a taxable profit of $400,000 and pays an equity dividend of $250,000. Income tax on DR's profit is at a rate of 25%.

Equity shareholders pay tax on their dividend income at a rate of 30%.

If DR and its equity shareholders pay a total of $175,000 tax between them, what method of corporate income tax is being used in that country?

A The classical system

B The imputation system

C The partial imputation system

D The split rate system

(2 marks)

1.16 DX had the following balances in its trial balance at 30 September 2006:

Trial balance extract at 30 September 2006

	$000	*$000*
Revenue		2,400
Cost of sales	1,400	
Inventories	360	
Trade receivables	290	
Trade payables		190
Cash and cash equivalents	95	

Calculate the length of DX's working capital cycle at 30 September 2006.

(4 marks)

1.17 DK is considering investing in government bonds. The current price of a $100 bond with 10 years to maturity is $88. The bonds have a coupon rate of 6% and repay face value of $100 at the end of the 10 years.

Calculate the yield to maturity.

(4 marks)

1.18 DY had a balance outstanding on trade receivables at 30 September 2006 of $68,000. Forecast credit sales for the next six months are $250,000 and customers are expected to return goods with a sales value of $2,500.

Based on past experience, within the next six months DY expects to collect $252,100 cash and to write off as bad debts 5% of the balance outstanding at 30 September 2006.

Calculate DY's forecast trade receivables days outstanding at 31 March 2007.

(4 marks)

(Total for Section A = 50 marks)

End of Section A

Section B starts on the next page

TURN OVER

SECTION B – 30 MARKS

[the indicative time for answering this Section is 54 minutes]

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

Question Two

(a) DV purchased two buildings on 1 September 1996. Building A cost $200,000 and had a useful economic life of 20 years. Building B cost $120,000 and had a useful economic life of 15 years. DV's accounting policies are to revalue buildings every five years and depreciate them over their useful economic lives on the straight line basis. DV does not make an annual transfer from revaluation reserve to retained profits for excess depreciation.

DV received the following valuations from its professionally qualified external valuer:

31 August 2001	Building A	$180,000
	Building B	$75,000
31 August 2006	Building A	$100,000
	Building B	$30,000

Required:

Calculate the gains or impairments arising on the revaluation of Buildings A and B at 31 August 2006 and identify where they should be recognised in the financial statements of DV.

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

(b) DC is carrying out three different construction contracts. The balances and results for the year to 30 September 2006 were as follows:

Contract	*1*	*2*	*3*
Contract end date	*30 Sept 2010*	*31 Dec 2007*	*30 Sept 2007*
	$m	*$m*	*$m*
Profit/(loss) recognised for year	2	2·3	(0·6)
Expected total profit/(loss) on contract	12	5	(3)

DC's management have included $3·7m profit in the income statement for the year ended 30 September 2006.

No allowance has been made in the income statement for the future loss expected to arise on contract 3, as management consider the loss should be offset against the expected profits on the other two contracts.

EA & Co are DC's external auditors. EA & Co consider that the profit in relation to long term contracts for the year ended 30 September 2006 should be $1·3m, according to IAS 11 *Construction Contracts*. Assume that EA & Co have been unable to persuade DC's management to change their treatment of the long term contract profit/loss.

Required:

(i) Explain the objective of an external audit.

(ii) Identify, with reasons, the type of audit report that would be appropriate for EA & Co to use for DC's financial statements for the year ended 30 September 2006. Briefly explain what information should be included in the audit report in relation to the contracts.

Your answer should refer to appropriate International Standards on Auditing (ISA).

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

Section B continues on the next page

TURN OVER

(c) You are in charge of the preparation of the financial statements for DF. You are nearing completion of the preparation of the accounts for the year ended 30 September 2006 and two items have come to your attention.

1. Shortly after a senior employee left DF in April 2006, a number of accounting discrepancies were discovered. With further investigation, it became clear that fraudulent activity had been going on. DF has calculated that, because of the fraud, the profit for the year ended 30 September 2005 had been overstated by $45,000.

2. On 1 September 2006, DF received an order from a new customer enclosing full payment for the goods ordered; the order value was $90,000. DF scheduled the manufacture of the goods to commence on 28 November 2006. The cost of manufacture was expected to be $70,000. DF's management want to recognise the $20,000 profit in the income statement for the year ended 30 September 2006. It has been suggested that the $90,000 should be recognised as revenue and a provision of $70,000 created for the cost of manufacture.

DF's income statement for the year ended 30 September 2005 showed a profit of $600,000. The draft income statement for the year ended 30 September 2006 showed a profit of $700,000. The 30 September 2005 accounts were approved by the directors on 1 March 2006.

Required:

Explain how the events described above should be reported in the financial statements of DF for the years ended 30 September 2005 and 2006.

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

(d) DG purchased its only non-current tangible asset on 1 October 2002. The asset cost $200,000, all of which qualified for tax depreciation. DG's accounting depreciation policy is to depreciate the asset over its useful economic life of five years, assuming no residual value, charging a full year's depreciation in the year of acquisition and no depreciation in the year of disposal.

The asset qualified for tax depreciation at a rate of 30% per year on the reducing balance method. DG sold the asset on 30 September 2006 for $60,000.

The rate of income tax to apply to DG's profit is 20%. DG's accounting period is 1 October to 30 September.

Required:

(i) Calculate DG's deferred tax balance at 30 September 2005.

(ii) Calculate DG's accounting profit/loss that will be recognised in its income statement on the disposal of the asset, in accordance with IAS 16 *Property, Plant and Equipment*.

(iii) Calculate DG's tax balancing allowance/charge arising on the disposal of the asset.

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

(e) DH raised cash through an equity share issue to pay for a new factory it planned to construct. However, the factory contract has been delayed and payments are not expected to be required for three or four months. DH is going to invest its surplus funds until they are required.

One of the directors of DH has identified three possible investment opportunities:

(i) Treasury bills issued by the central bank of DH's country. They could be purchased on 1 December 2006 for a period of 91 days. The likely purchase price is $990 per $1,000.

(ii) Equities quoted on DH's local stock exchange. The stock exchange has had a good record in recent months with the equity index increasing in value for 14 consecutive months. The director recommends that DH invests in three large multi-national entities each paying an annual dividend that provides an annual yield of 10% on the current share price.

(iii) DH's bank would pay 3·5% per year on money placed in a deposit account with 30 day's notice.

Required:

As Assistant Management Accountant, you have been asked to prepare notes on the risk and effective yield of each of the above investment opportunities for use by the Management Accountant at the next board meeting.

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

(f) DJ maintains a minimum cash holding of $1,000. The standard deviation of its daily cash flows has been measured at $300 (variance is $90,000). DJ's annual cash outgoings are $420,000 spread evenly over the year. The transaction cost of each sale or purchase of treasury bills is $25. The daily interest rate is 0·02% (7·3% per year).

Required:

(i) Using the Baumol cash management model, calculate the optimum amount of treasury bills to be sold each time cash is required.

(ii) Using the Miller-Orr cash management model, calculate the optimum amount of securities to sell when cash holding reaches the lower limit.

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

Total for Section B = 30 marks

End of Section B

Section C starts on the next page

TURN OVER

SECTION C – 20 MARKS

[the indicative time for answering this Section is 36 minutes]

ANSWER *ONE* QUESTION ONLY

Question Three

The trial balance for DM, a trading entity, at 30 September 2006 was as follows:

	$000	*$000*
6% Loan (repayable 2025)		140
Administrative expenses	91	
Cash and cash equivalents	43	
Distribution costs	46	
Dividend paid 1 June 2006	25	
Inventory at 30 September 2005	84	
Inventory purchases	285	
Land and buildings at cost	500	
Equity shares $1 each, fully paid		300
Plant and equipment at cost	211	
Provision for deferred tax at 30 September 2005		40
Provision for depreciation at 30 September 2005 – Buildings		45
Provision for depreciation at 30 September 2005 – Plant and equipment		80
Retained earnings at 30 September 2005		32
Sales revenue		602
Share premium		50
Trade payables		29
Trade receivables	6	
Vehicle lease rental paid	27	
	1,318	1,318

Additional information:

(i) Inventory at 30 September 2006 was $93,000;

(ii) There were no sales of non-current assets during the year ended 30 September 2006;

(iii) The income tax due for the year ended 30 September 2006 is estimated at $24,000. The deferred tax provision needs to be increased by $15,000;

(iv) Depreciation is charged on buildings using the straight line method at 3% per annum. The cost of land included in land and buildings is $200,000. Buildings depreciation is treated as an administration expense;

(v) Plant and equipment is depreciated using the reducing balance method at 20%. Plant and equipment depreciation is regarded as a cost of sales.

(vi) Vehicles are depreciated using the straight line method at 20% per year. Vehicles depreciation is regarded as a distribution cost;

(vii) During the year DM issued 100,000 new $1 equity shares at a premium of 50%. The proceeds were all received before 30 September 2006 and are included in the trial balance figures;

(viii) DM entered into a non-cancellable five-year finance lease on 1 October 2005 to acquire a number of vehicles for use in the entity. The vehicles had a fair value of $100,000 and the annual lease payment is $27,000 per year in arrears. The finance charge is to be allocated using the actuarial method. The interest rate implicit in the lease is 10·92%. All the vehicles have economic useful lives of five years. The only entry in the accounting system is the lease payments made to date of $27,000;

(ix) The 6% loan was taken out on 1 December 2005.

Required:

Prepare the income statement and a statement of changes in equity for the year ended 30 September 2006 and a balance sheet at that date, in a form suitable for presentation to the shareholders and in accordance with the requirements of International Financial Reporting Standards.

(Notes to the financial statements are NOT required, but all workings must be clearly shown and should be to the nearest $000. **Do not prepare a statement of accounting policies**.)

(Total for Question Three = 20 marks)

Section C continues on the next page

TURN OVER

Question Four

DN's draft financial statements for the year ended 31 October 2006 are as follows:

DN Income Statement for the Year to 31 October 2006

	\$000	\$000
Revenue		2,600
Cost of sales		
Parts and sub-assemblies	(500)	
Labour	(400)	
Overheads	(400)	(1,300)
Gross profit		1,300
Administrative expenses	(300)	
Distribution costs	(100)	(400)
Profit from operations		900
Finance cost		(110)
Profit before tax		790
Income tax expense		(140)
Profit for the period		650

DN Balance Sheet at	*31 October 2006*		*31 October 2005*	
	\$000	\$000	\$000	\$000
ASSETS				
Non-current assets				
Property, plant and equipment		4,942		4,205
Current assets				
Inventories	190		140	
Trade receivables	340		230	
Cash and cash equivalents	0	530	45	415
Total assets		5,472		4,620
EQUITY AND LIABILITIES				
Equity				
Equity shares of \$0·50 each	1,300		1,000	
Share premium	300		0	
Revaluation reserve	400		0	
Retained earnings	1,660		1,410	
Total equity		3,660		2,410
Non-current liabilities				
Bank loans (various rates)		1,500		2,000
		5,160		4,410
Current liabilities		312		210
Total equity and liabilities		5,472		4,620

Additional information:

(i) Property, plant and equipment comprises:

	2006	*2005*
	\$000	*\$000*
Property	3,100	2,800
Plant and equipment	1,842	1,405

(ii) Plant and equipment sold during the year for \$15,000 had originally cost \$60,000 five years ago. The plant and equipment were depreciated on the straight line basis over six years. Any gain/loss on disposal has been included in overheads;

(iii) Properties were revalued on 31 October 2006;

(iv) DN made an equity share issue on 31 October 2006. The new shares do not rank for dividend until the following accounting period;

(v) DN's funding includes two bank loans:
- $1,500,000 6% loan commenced 30 June 2006, due for repayment 29 June 2009;
- $2,000,000 7% loan repaid early on 1 July 2006;

(vi) Current liabilities:

	2006	*2005*
	$000	*$000*
Trade payables	105	85
Interest payable	55	75
Tax payable	70	50
Bank overdraft	82	0
Total current liabilities	312	210

(vii) A dividend of $0·20 per share was paid on 1 May 2006;

(viii) Overheads include the annual depreciation charge of $100,000 for property and $230,000 for plant and equipment.

Required:

Prepare DN's cash flow statement for the year ended 31 October 2006, using the **indirect** method, in accordance with IAS 7 *Cash Flow Statements.*

(Total for Question Four = 20 marks)

(Total for Section C = 20 marks)

End of Question Paper

Maths Tables and Formulae are on pages 17 to 19

TURN OVER

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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 (n)	Interest rates (r)									
	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 (n)	Interest rates (r)									
	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

$$EOQ = \sqrt{\frac{2C_oD}{C_h}}$$

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:

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

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

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

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Financial Management Pillar

Managerial Level

P7 – Financial Accounting and Tax Principles

November 2006

Thursday Afternoon Session