



Management Accounting Pillar

Strategic Level Paper

## P3 – Management Accounting – Risk and Control Strategy

22 May 2008 – Thursday Morning Session

### **Instructions to candidates**

You are allowed three hours to answer this question paper.
You are allowed 20 minutes reading time <b>before the examination begins</b> during which you should read the question paper and, if you wish, highlight and/or make notes on the question paper. However, you will <b>not</b> be allowed, <b>under any circumstances</b> , to open the answer book and start writing or use your calculator during the 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 question requirements are contained in a dotted box.
ALL answers must be written in the answer book. Answers or notes written on the question paper will <b>not</b> be submitted for marking.
Answer the ONE compulsory question in Section A on pages 2 to 5. The question requirements are on page 5, which is detachable for ease of reference.
Answer TWO questions only from Section B on pages 8 to 12.
Maths Tables and Formulae are provided on pages 13 to 16. These pages are detachable for ease of reference.
The list of verbs as published in the syllabus is given for reference on the inside back cover of this question paper.
Write your candidate number, the paper number and examination subject title in the spaces provided on the front of the 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.

# P3 – Risk and Control Strategy

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## SECTION A – 50 MARKS

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

ANSWER THIS QUESTION. THE QUESTION REQUIREMENTS ARE ON PAGE 5, WHICH IS DETACHABLE FOR EASE OF REFERENCE

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### Question One

MFT is a publicly listed company, which operates a chain of 74 restaurants throughout the country. The company has built a reputation for quality dining at affordable prices. The business model operated by MFT is to maximise the number of customers within each restaurant's seating capacity and to maximise the amount of money spent by each customer on food and alcohol.

#### Restaurant management

Each restaurant has a manager. Many of these managers have been with MFT for a long time and are well known to senior management. MFT's Head Office allows managers considerable autonomy in the management of their restaurants. The restaurant manager decides on the menu for his or her restaurant, orders food and alcohol from Head Office and promotes the restaurant locally.

Pricing is the responsibility of each restaurant manager. Price variations depend on location, competition and menu. Each restaurant operates a paper-based, order-taking system. One copy of the order is passed to the kitchen; the other is priced and given to the customer at the end of the meal. About 80% of customers pay their bill by credit card and about 20% pay in cash. The restaurant manager must control costs by balancing staff levels with customer demand. The manager must also minimise food wastage, for example by promoting daily specials.

A market research consultancy carries out annual customer satisfaction and brand recognition surveys for each restaurant.

#### Central support

MFT's Head Office is responsible for strategic planning, financial management, and legal and governance issues. It also provides marketing support for each restaurant and purchases all food and alcohol through central purchasing arrangements. Sub-contractors are used to deliver fresh food to each restaurant daily. Alcohol is delivered direct by suppliers. Food and alcohol can be signed for by any employee when the deliveries are made to restaurants. Alcohol is stored in a locked storeroom.

#### Financial management

MFT exercises strict financial and reporting controls. Each day, restaurant managers must report the value of sales to Head Office and deposit cash receipts to a central bank account. Each week, restaurant managers must report the number of customers served each day and submit an inventory of unsold food and alcohol to Head Office.

The cost of food and alcohol is charged to each restaurant. Staff salaries, based on manual time records, are paid by Head Office into employee bank accounts. Incidental expenses are paid by restaurant managers using a corporate credit card. This permits local payments for advertising, menu printing and so on. The rental and utility costs for each restaurant are paid by Head Office.

A weekly profit statement showing the performance of the restaurant is sent from Head Office to the restaurant manager. Accompanying the report is a comparison against the budget for that restaurant and the average results for all restaurants. Information received by each restaurant manager includes income, gross and operating profits, seating capacity utilisation and spend

per customer. MFT defines gross profit as that which is controllable by the restaurant manager, after deducting the cost of food and alcohol, staff salaries and local payments.

The non-controllable expenses of rent and utilities and allocated corporate costs are deducted to arrive at operating profit. The restaurant manager is paid a bonus based on the gross profit earned by his or her restaurant.

### **Restaurant profitability**

The gross profit for MFT as a whole is 35% of sales income, but there is considerable variation between the 74 restaurants. The performance of 5 to 7 restaurants is of concern.

The average sales mix comprises approximately 70% food and 30% alcohol. The gross profit is approximately 30% on food and 50% on alcohol. No restaurant spends more than 1% of sales on local purchases.

### **Audit and Control**

MFT's internal auditor designed the management control and reporting system used by the company. The internal auditor takes a systems approach to auditing and ensures that the weekly management reporting and end-of-year financial reporting is accurate and on time.

MFT has recently received the management letter from its external auditors following the completion of the year-end statutory audit. The auditors have identified a number of risks and have made the following suggestions:

1. There is considerable variation in spend per customer and gross profit margins between individual restaurants. This may be the result of poor restaurant management and/or malpractice. Internal audit should spend more time on checks on individual restaurants that are under-performing compared to the company average. This would allow improvements to be made by utilising best practice from better-performing restaurants.
2. The manual order-taking process has potential for errors in terms of the kitchen fulfilling an order and in pricing. There is also the possibility that the proceeds of bills paid in cash will not be paid into MFT's bank account. MFT should consider a computerised order-taking system in all of its restaurants to eliminate errors, mis-pricing and cash losses.
3. Inventory may be taken by staff for personal use. As most of the value of inventory is alcohol, the suggested computerised order-taking system would also provide a perpetual inventory for alcohol, resulting in more physical control and better management information.
4. Employee time records may not be accurate and employees may be claiming for working longer hours than they have actually worked. MFT should consider an automated time recording system whereby employees enter a code when starting and finishing work.
5. The customer satisfaction and brand awareness survey shows considerable customer dissatisfaction and a negative brand perception in a few areas in which MFT has restaurants. Management should identify the causes and rectify this situation.
6. Restaurant managers may use their corporate credit cards improperly, for example to make personal purchases or to purchase local food and alcohol contrary to corporate guidelines. Credit cards could be replaced with a small petty cash float to eliminate this possibility.
7. There is a risk of short-delivery of food and alcohol by sub-contractors and suppliers when any employee can sign for the delivery, as the quantities and condition may not be checked. This can lead to significant stock losses. All deliveries should be checked as to quality and quantity by the restaurant manager.

*The Question requirements are on page 5, which is detachable for ease of reference*

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*Required:*

**(a)**

- (i) Construct a 2x2 likelihood/consequences matrix according to whether they are high, medium and low. *(4 marks)*
  
- (ii) Explain, with examples, an appropriate response for each of the risk categories. *(4 marks)*
  
- (iii) Apply the matrix to categorise each of the seven risks identified by MFT's auditors and state your reasons. *(11 marks)*

*(Total for Part (a) = 19 marks)*

- (b)** As the sole internal auditor within MFT, write a report recommending to the Audit Committee which of the external auditor's suggestions should be adopted and which should be rejected. Give reasons to support your recommendations.

*(26 marks including 5 marks for report style)*

- (c)** Explain the ethical issue faced by the internal auditor when responding to the external auditor's report.

*(5 marks)*

*(Total for Question One = 50 marks)*

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*[Section B starts on the next page]*

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## SECTION B – 50 MARKS

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

ANSWER TWO QUESTIONS ONLY

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### **Question Two**

CSX is a distribution company, which buys and sells small electronic components. The company has sales of \$200 million per annum on which it achieves a profit of \$12 million.

#### **Central Warehouse Department**

The company has a large Central Warehouse Department employing 100 staff over 2 shifts. The warehouse contains 30,000 different components, which are of high value and are readily saleable. Technological change is commonplace and components can become obsolete with little warning. Twice a year, the Purchasing Manager authorises the disposal of obsolete inventory. Inventory control is carried out through a computer system that has been used by the company for the last ten years.

#### **Purchasing and receiving**

Inventory is ordered using manual purchase orders based on tender prices. Goods received into the Central Warehouse are recorded on a manual Goods Received Note which is the source document for computer data entry. Data entry is done by clerical staff employed within the Central Warehouse.

#### **Customer orders**

Orders from customers are entered into the computer by clerical staff in the Sales Department. The computer checks inventory availability and produces a Picking List which is used by Central Warehouse staff to assemble the order. Frequently, there are differences between the computer inventory record and what is physically in the store. The Picking List (showing the actual quantities ready to be delivered) is used by clerical staff to update the computer records in the Central Warehouse. A combined Delivery Note/Invoice is then printed to accompany the goods.

#### **Accounting**

At the end of each financial year, a physical check of inventory is carried out which results in a significant write-off. To allow for these losses, the monthly operating statements to the Board of Directors include a 2% contingency, added to each month's cost of sales.

#### **Internal Audit Department**

The company's Internal Audit Department has been asked by the Board to look at the problem of inventory losses. Managers in the Central Warehouse believe that inventory losses are the result of inaccurate data entry, the old and unreliable nature of the computer system and the large number of small inventory items which are easily lost, or which warehouse staff throw away if they are obsolete or damaged.



*Required:*

- (a) Explain the risks faced by CSX in relation to its inventory control system and recommend specific improvements to the system's internal controls. *(15 marks)*
- (b) Recommend (without being specific to the CSX scenario) the tests or techniques, both manual and computerised, that internal auditors can use in assessing the adequacy of inventory controls. *(10 marks)*

*(Total for Question Two = 25 marks)*

*Section B continues on the next page*

TURN OVER

### Question Three

LXY is a company, which has a five-year contract to operate buses in and out of the city bus station in Danon, France. The station has 60 bus piers and an average of 90 buses per hour leave Danon for local and national destinations.

Services operate between 06.00 and 22.00 daily. All buses are operated solely by the driver, who loads and unloads luggage and checks that all passengers have a valid ticket. LXY only permits travel with a pre-paid ticket.

Local buses provide a suburban service to areas within a 20 kilometre radius of Danon. The national services cover distances of up to 500 kilometres and so drivers are frequently required to stay overnight at certain destinations before covering the return service the following day.

*Required:*

(a) You have recently been appointed Head of Risk and Internal Audit at LXY.

(i) Identify, with a brief justification, three categories which may be used to classify and manage the risks faced by LXY.

*(3 marks)*

(ii) For ONE of the categories that you have selected in (i) above, identify three possible risks and recommend appropriate tools for their control.

*(9 marks)*

*(Total for Part (a) = 12 marks)*

(b) A café owner in Danon has approached LXY with a proposal to provide food and drink facilities on board long-distance bus services.

Identify the additional risks that need to be considered by LXY in the evaluation of the proposal, and how they might be managed.

*(4 marks)*

(c) Many companies are too small to justify the existence of separate risk management and internal audit functions.

Briefly explain the distinctive roles performed by each of these functions and recommend ways of maintaining their separate effectiveness within a combined department.

*(9 marks)*

*(Total for Question Three = 25 marks)*

#### Question Four

A foreign exchange dealer working in a London-based investment bank wishes to take advantage of arbitrage opportunities in the international money markets.

The following data is available relating to interest rates and exchange rates for Australia and the USA:

	US\$/£	AUS\$/£
Spot	2.0254	2.3180
6 Month Forward	1.9971	2.3602

The effective six-month Australian dollar interest rate is 3.32% and the equivalent US \$ rate is 3.68%. These rates apply to both borrowing and lending.

Assume that in six months' time the actual exchange rate between sterling and Australian dollars is Aus\$ 2.32/£.

The dealer is authorised to buy or sell up to US\$5 million per transaction. The costs for this type of currency trading are charged in sterling at a rate of £3,000 per transaction.

Note: Each currency conversion counts as one transaction.

*Required:*

- (a) Calculate the spot and six-month forward cross rates between the Australian and US dollar. *(4 marks)*
- (b) Explain the meaning of the term "arbitrage profit" and explain why such profits may be available in the scenario outlined above. (No illustrative calculations are required). *(6 marks)*
- (c) Calculate the profit available to the dealer from exploiting the opportunity shown above, clearly showing all of your calculations. *(10 marks)*
- (d) Explain the importance of "trading limits" and "value at risk" as tools for managing the risks within a financial trading operation. *(5 marks)*

*(Total for Question Four = 25 marks)*

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*Section B continues on the next page*

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### Question Five

(a) With specific reference to risk management:

(i) Define and discuss the role of the Treasury function within an organisation;

and

*(6 marks)*

(ii) Discuss the arguments for and against operating a Treasury function as a profit centre.

*(6 marks)*

*(Total for Part (a) = 12 marks)*

(b) Explain the factors a Board of Directors should consider when deciding what to include in the section entitled "Risk Exposure and Control Systems", in their company's report.

*(13 marks)*

*(Total for Question Five = 25 marks)*

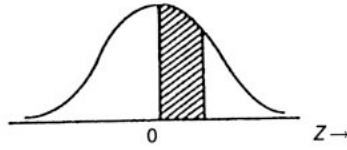
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*End of question paper*

*Maths Tables and Formulae are on pages 13-16*

### AREA UNDER THE NORMAL CURVE

This table gives the area under the normal curve between the mean and a point  $Z$  standard deviations above the mean. The corresponding area for deviations below the mean can be found by symmetry.



$Z = \frac{(x - \mu)}{\sigma}$	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	.0000	.0040	.0080	.0120	.0159	.0199	.0239	.0279	.0319	.0359
0.1	.0398	.0438	.0478	.0517	.0557	.0596	.0636	.0675	.0714	.0753
0.2	.0793	.0832	.0871	.0910	.0948	.0987	.1026	.1064	.1103	.1141
0.3	.1179	.1217	.1255	.1293	.1331	.1368	.1406	.1443	.1480	.1517
0.4	.1554	.1591	.1628	.1664	.1700	.1736	.1772	.1808	.1844	.1879
0.5	.1915	.1950	.1985	.2019	.2054	.2088	.2123	.2157	.2190	.2224
0.6	.2257	.2291	.2324	.2357	.2389	.2422	.2454	.2486	.2518	.2549
0.7	.2580	.2611	.2642	.2673	.2704	.2734	.2764	.2794	.2823	.2852
0.8	.2881	.2910	.2939	.2967	.2995	.3023	.3051	.3078	.3106	.3133
0.9	.3159	.3186	.3212	.3238	.3264	.3289	.3315	.3340	.3365	.3389
1.0	.3413	.3438	.3461	.3485	.3508	.3531	.3554	.3577	.3599	.3621
1.1	.3643	.3665	.3686	.3708	.3729	.3749	.3770	.3790	.3810	.3830
1.2	.3849	.3869	.3888	.3907	.3925	.3944	.3962	.3980	.3997	.4015
1.3	.4032	.4049	.4066	.4082	.4099	.4115	.4131	.4147	.4162	.4177
1.4	.4192	.4207	.4222	.4236	.4251	.4265	.4279	.4292	.4306	.4319
1.5	.4332	.4345	.4357	.4370	.4382	.4394	.4406	.4418	.4430	.4441
1.6	.4452	.4463	.4474	.4485	.4495	.4505	.4515	.4525	.4535	.4545
1.7	.4554	.4564	.4573	.4582	.4591	.4599	.4608	.4616	.4625	.4633
1.8	.4641	.4649	.4656	.4664	.4671	.4678	.4686	.4693	.4699	.4706
1.9	.4713	.4719	.4726	.4732	.4738	.4744	.4750	.4756	.4762	.4767
2.0	.4772	.4778	.4783	.4788	.4793	.4798	.4803	.4808	.4812	.4817
2.1	.4821	.4826	.4830	.4834	.4838	.4842	.4846	.4850	.4854	.4857
2.2	.4861	.4865	.4868	.4871	.4875	.4878	.4881	.4884	.4887	.4890
2.3	.4893	.4896	.4898	.4901	.4904	.4906	.4909	.4911	.4913	.4916
2.4	.4918	.4920	.4922	.4925	.4927	.4929	.4931	.4932	.4934	.4936
2.5	.4938	.4940	.4941	.4943	.4945	.4946	.4948	.4949	.4951	.4952
2.6	.4953	.4955	.4956	.4957	.4959	.4960	.4961	.4962	.4963	.4964
2.7	.4965	.4966	.4967	.4968	.4969	.4970	.4971	.4972	.4973	.4974
2.8	.4974	.4975	.4976	.4977	.4977	.4978	.4979	.4980	.4980	.4981
2.9	.4981	.4982	.4983	.4983	.4984	.4984	.4985	.4985	.4986	.4986
3.0	<b>.49865</b>	.4987	.4987	.4988	.4988	.4989	.4989	.4989	.4990	.4990
3.1	<b>.49903</b>	.4991	.4991	.4991	.4992	.4992	.4992	.4992	.4993	.4993
3.2	<b>.49931</b>	.4993	.4994	.4994	.4994	.4994	.4994	.4995	.4995	.4995
3.3	<b>.49952</b>	.4995	.4995	.4996	.4996	.4996	.4996	.4996	.4996	.4997
3.4	<b>.49966</b>	.4997	.4997	.4997	.4997	.4997	.4997	.4997	.4997	.4998
3.5	<b>.49977</b>									

## 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 ( $n$ )	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	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 ( $n$ )	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	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	4.793	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

### Annuity

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

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

### Perpetuity

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

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

### Growing Perpetuity

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:

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

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## LIST OF VERBS USED IN THE QUESTION REQUIREMENTS

A list of the learning objectives and verbs that appear in the syllabus and in the question requirements for each question in this paper.

It is important that you answer the question according to the definition of the verb.

LEARNING OBJECTIVE	VERBS USED	DEFINITION
<b>1 KNOWLEDGE</b> What you are expected to know.	List State Define	Make a list of Express, fully or clearly, the details of/facts of Give the exact meaning of
<b>2 COMPREHENSION</b> What you are expected to understand.	Describe Distinguish Explain Identify Illustrate	Communicate the key features Highlight the differences between Make clear or intelligible/State the meaning of Recognise, establish or select after consideration Use an example to describe or explain something
<b>3 APPLICATION</b> How you are expected to apply your knowledge.	Apply Calculate/compute Demonstrate  Prepare Reconcile Solve Tabulate	To put to practical use To ascertain or reckon mathematically To prove with certainty or to exhibit by practical means  To make or get ready for use To make or prove consistent/compatible Find an answer to Arrange in a table
<b>4 ANALYSIS</b> How are you expected to analyse the detail of what you have learned.	Analyse Categorise Compare and contrast Construct Discuss Interpret Produce	Examine in detail the structure of Place into a defined class or division Show the similarities and/or differences between To build up or compile To examine in detail by argument To translate into intelligible or familiar terms To create or bring into existence
<b>5 EVALUATION</b> How are you expected to use your learning to evaluate, make decisions or recommendations.	Advise Evaluate Recommend	To counsel, inform or notify To appraise or assess the value of To advise on a course of action

*Management Accounting Pillar*

*Strategic Level Paper*

*P3 – Management Accounting - Risk  
and Control Strategy*

*May 2008*

*Thursday Morning Session*