Professional Level - Options Module

# Advanced Performance Management

M

Friday 5 December 2008

#### Time allowed

Reading and planning: 15 minutes Writing: 3 hours

This paper is divided into two sections:

Section A – BOTH questions are compulsory and MUST be attempted

Section B - TWO questions ONLY to be attempted

Present Value and Annuity Tables are on pages 11 and 12.

Do NOT open this paper until instructed by the supervisor.

During reading and planning time only the question paper may be annotated. You must NOT write in your answer booklet until instructed by the supervisor.

This question paper must not be removed from the examination hall.

The Association of Chartered Certified Accountants

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#### Section A – BOTH questions are compulsory and MUST be attempted

- 1 The Sentinel Company (TSC) offers a range of door-to-door express delivery services. The company operates using a network of depots and distribution centres throughout the country of Nickland. The following information is available:
  - (1) Each depot is solely responsible for all customers within a specified area. It collects goods from customers within its own area for delivery both within the specific area covered by the depot and elsewhere in Nickland.
  - (2) Collections made by a depot for delivery outside its own area are forwarded to the depots from which the deliveries will be made to the customers.
  - (3) Each depot must therefore integrate its deliveries to customers to include:
    - (i) goods that it has collected within its own area; and
    - (ii) goods that are transferred to it from depots within other areas for delivery to customers in its area.
  - (4) Each depot earns revenue based on the invoiced value of all consignments collected from customers in its area, regardless of the location of the ultimate distribution depot.
  - (5) Depot costs comprise all of its own operating costs plus an allocated share of all company costs including centralised administration services and distribution centre costs.
  - (6) Bonuses for the management team and all employees at each depot are payable quarterly. The bonus is based on the achievement of a series of target values by each depot.
  - (7) Internal benchmarking is used at TSC in order to provide sets of absolute standards that all depots are expected to attain.
  - (8) (a) The Appendix shows the target values and the actual values achieved for each of a sample group of four depots situated in Donatellotown (D), Leonardotown (L), Michaelangelotown (M), and Raphaeltown (R).
    - (b) The target values focus on three areas:
      - (i) depot revenue and profitability;
      - (ii) customer care and service delivery; and
      - (iii) credit control and administrative efficiency.
    - (c) The bonus is based on a points system, which is also used as a guide to the operational effectiveness at each depot. One point is allocated where the target value for each item in the Appendix is either achieved or exceeded, and a zero score where the target is not achieved.

#### Appendix

Target and actual value statistics for Donatellotown (D), Leonardotown (L), Michaelangelotown (M), and Raphaeltown (R) for the Year ended 31 October 2008

#### **Revenue and Profit Statistics:**

	Reve	Revenue (1)		
	Target \$m	Actual \$m	Target \$m	Actual \$m
Company overall	200	240	30	32
Selected depots:				
D	16	15	2.4	2.3
L	14	18	2.1	2.4
Μ	12	14	1.8	2.2
R	18	22	2.7	2.8

Note: For the purpose of calculation of each depot's points it is essential that actual profit as a percentage of actual revenue must exceed the target profit (%).

Customer Care & Service Delivery Statistics:

	Target		Act	ual	
Selected Depots:		D	L	М	R
	%	%	%	%	%
Measure (% of total):					
(3) Late collection of consignments	2.0	1.9	2.1	1.8	2.4
(4) Misdirected consignments	4.0	4.2	3.9	3.3	5.1
(5) Delayed response to complaints	1.0	0.7	0.9	0.8	1.2
(6) Delays due to vehicle breakdown	1.0	$1 \cdot 1$	1.4	0.3	2.0
Measure (% of revenue):					
(7) Lost items	1.0	0.6	0.9	0.8	1.9
(8) Damaged items	2.0	1.5	2.4	1.5	1.8
Credit Control & Administration Efficiency	Statistics:				
	Target	D	L	М	R
(9) Average debtor weeks	5.5	5.8	4.9	5.1	6.5
(10) Debtors in excess of 60 days (% of to	tal) 5%	?	?	?	?
(11) Invoice queries (% of total)	5%	1.1%	1.4%	0.8%	2.7%
(12) Credit notes as a % of revenue	0.5%	?	?	?	?
Other information:					
		D	L	М	R
Aged Debtor analysis (extract):		\$000	\$000	\$000	\$000
Less than 30 days		1,300	1,500	1,180	2,000
31–60 days		321	133	153	552
Value of credit notes raised during the period	od (\$000)	45	36	28	132

Note: TSC operates all year round.

**Required:** 

- (a) Prepare a report for the directors of TSC which:
  - (i) contains a summary table which shows the points gained (or forfeited) by each depot. The points table should facilitate the ranking of each depot against the others for each of the 12 measures provided in the Appendix. (9 marks)
  - (ii) evaluates the relative performance of the four depots as indicated by the analysis in the summary table prepared in (i); (5 marks)
  - (iii) assesses TSC in terms of financial performance, competitiveness, service quality, resource utilisation, flexibility and innovation and discusses the interrelationships between these terms, incorporating examples from within TSC; and (10 marks)
  - (iv) critiques the performance measurement system at TSC. (5 marks)

Note: requirement (a) includes 4 professional marks.

A central feature of the performance measurement system at TSC is the widespread use of league tables that display each depot's performance relative to one another.

#### **Required:**

(b) Evaluate the potential benefits and problems associated with the use of 'league tables' as a means of measuring performance. (6 marks)

(35 marks)

2 The Superior Software House (SSH) commenced trading on 1 December 2002 in the country of Bonlandia. SSH develops bespoke software packages on behalf of clients. When requested to do so, SSH also provides training to clients' staff in the use of these software packages. On 1 December 2006, the directors of SSH established a similar semi-autonomous operation in Karendia. All software packages are produced in Bonlandia and transferred to Karendia at cost plus attributable overheads i.e. there is no mark-up on the software packages transferred from Bonlandia to Karendia.

Karendia is a country in which the structure of industry has changed during recent years. There has been a major shift from traditional manufacturing businesses to service orientated businesses which place a far greater emphasis upon the use of business software.

The operational managers in both Bonlandia and Karendia have no control over company policies in respect of acquisitions and financing.

The operational manager of Bonlandia receives a bonus of 40% of his basic salary for meeting all client delivery deadlines in respect of Karendia. At a recent meeting he instructed his staff to 'install client software by the due date and we'll worry about fixing any software problems after it's been installed. After all, we always fix software problems eventually'. He also stated that 'it is of vital importance that we grow our revenues in Karendia as quickly as possible. Our clients in Karendia might complain but they have spent a lot of money on our software products and will not be able to go to any of our competitors once we have installed our software as all their businesses would suffer huge disruption'.

Financial data (all stated on an actual basis) in respect of the two divisions for the two years ended 30 November 2007 and 2008 are shown on the next page:

#### Summary Income Statements:

Revenue	Bonlandia 2008 \$000 14,600	Karendia 2008 \$000 2,800	Combined 2008 \$000 17,400	Bonlandia 2007 \$000 14,000	Karendia 2007 \$000 2,000	Combined 2007 \$000 16,000
Salaries	4,340	1,248	5,588	4,000	1,200	5,200
Software & consumables	2,040	486	2,526	2,000	450	2,450
Other operating costs	2,880	654	3,534	2,800	600	3,400
	9,260	2,388	11,648	8,800	2,250	11,050
Marketing Interest (Group)	2,392	600	2,992 850	2,100	400	2,500 900
Depreciation and amortisation	400	160	560	400	100	500
	2,792	760	4,402	2,500	500	3,900
Total costs	12,052	3,148	16,050	11,300	2,750	14,950
Profit/(loss) for the period	2,548	(348)	1,350	2,700	(750)	1,050

#### Statements of financial position:

	Bonlandia 2008 \$000	Karendia 2008 \$000	Combined 2008 \$000	Bonlandia 2007 \$000	Karendia 2007 \$000	Combined 2007 \$000
Assets						
Non-current assets	9,000	1,600	10,600	8,000	1,000	9,000
Current assets	4,550	1,000	5,550	5,000	800	5,800
Total assets	13,550	2,600	16,150	13,000	1,800	14,800
Equity and liabilities						
Share capital and reserves Non-current liabilities			9,150			7,800
Long-term borrowings (Group)			4,000			4,500
Current liabilities	2,400	600	3,000	2,000	500	2,500
Total equity and liabilities			16,150			14,800

#### **Required:**

(a) Assess the financial performance of SSH and its operations in Bonlandia and Karendia during the years ended 30 November 2007 and 2008.

Note: you should highlight additional information that would be required in order to provide a more comprehensive assessment of the financial performance of each operation. (14 marks)

(b) Discuss the statements of the operational manager of Bonlandia and assess their implications for SSH.

(4 marks)

- (c) Assess the likely criteria which would need to be satisfied for software to be regarded as 'quality software'. (4 marks)
- (d) Suggest a set of SIX performance measures which the directors of SSH could use in order to assess the quality of service provided to its clients. (3 marks)

(25 marks)

## Section B – TWO questions ONLY to be attempted

**3** The Motherhelp Company (TMC), which is based in Happyland, manufactures and markets disposable nappies for babies and infant children. Disposable nappies are made of super-absorbent chemicals, paper pulp and plastics.

TMC has been very successful since its formation in 1996. It has established a very strong brand name and its products are sold by all leading pharmacies and supermarkets in Happyland. TMC has a strong organisational culture with high levels of employee motivation and satisfaction throughout the organisation.

Available information regarding the disposable nappy market size and TMC's revenue is as follows:

	Actual	Actual	Actual	Actual	Forecast	Forecast
	2005	2006	2007	2008	2009	2010
	\$m	\$m	\$m	\$m	\$m	\$m
Market size	2,726	2,807	2,920	3,095	3,249	3,347
Revenue	354	421	526	681	715	736

The marketing director of TMC has obtained information that the birth-rate in Happyland is projected to fall after 2010. However, the number of years over which the projected fall might take place cannot be forecast with any degree of certainty.

The directors of TMC are most concerned that in spite of the growth achieved during recent years, there remains a projected 'planning gap' at the end of 2012. In view of this fact the directors of TMC are considering the acquisition of The Comfy Baby Company (CBC), a competitor, which had revenue of \$155m during 2008 from sales of its disposable nappies. None of the directors of TMC have any previous experience of such an acquisition. The directors of TMC have heard that CBC has experienced workplace culture based problems during recent years.

The government of Happyland has recently issued a green paper, designed to encourage discussion and potentially pave the way for legislation, concerning the environment in which they stated their concerns about companies such as TMC whose entire revenues derive from sales of non-biodegradable products.

#### **Required:**

- (a) Using the above information, explain the term 'planning gap' and discuss other suitable alternative strategies to closing the planning gap which the directors of TMC might have considered prior to giving consideration to the purchase of CBC. (5 marks)
- (b) Analyse THREE potential problems, based solely on the information provided above, that TMC might encounter in the acquisition of CBC. (5 marks)
- (c) Explain the reasons for the concerns of the government of Happyland with companies such as TMC and advise the directors of a strategy that might be considered in order to avoid being subject to any forthcoming legislation concerning the environment. (5 marks)
- (d) Evaluate the circumstances in which a government can act as an aid to business performance. (5 marks)

(20 marks)

4 The Better Agriculture Group (BAG), which has a divisional structure, produces a range of products for the farming industry. Divisions B and C are two of its divisions. Division B sells a fertiliser product (BF) to customers external to BAG. Division C produces a chemical (CC) which it could transfer to Division B for use in the manufacture of its product BF. However, Division C could also sell some of its output of chemical CC to external customers of BAG.

An independent external supplier to The Better Agriculture Group has offered to supply Division B with a chemical which is equivalent to component CC. The independent supplier has a maximum spare capacity of 60,000 kilograms of the chemical which it is willing to make available (in total or in part) to Division B at a special price of \$55 per kilogram.

Forecast information for the forthcoming period is as follows:

## Division B:

Production and sales of 360,000 litres of BF at a selling price of \$120 per litre. Variable conversion costs of BF will amount to \$15 per litre. Fixed costs are estimated at \$18,000,000. Chemical (CC) is used at the rate of 1 kilogram of CC per 4 litres of product BF.

## Division C:

Total production capacity of 100,000 kilograms of chemical CC. Variable costs will be \$50 per kilogram of CC. Fixed costs are estimated at \$2,000,000.

Market research suggests that external customers of BAG are willing to take up sales of 40,000 kilograms of CC at a price of \$105 per kilogram. The remaining 60,000 kilograms of CC could be transferred to Division B for use in product BF. Currently no other market external to BAG is available for the 60,000 kilograms of CC.

## **Required:**

(a) (i) State the price/prices per kilogram at which Division C should offer to transfer chemical CC to Division B in order that the maximisation of BAG profit would occur if Division B management implement rational sourcing decisions based on purely financial grounds.

Note: you should explain the basis on which Division B would make its decision using the information available, incorporating details of all relevant calculations. (6 marks)

(ii) Division C is considering a decision to lower its selling price to customers external to the group to \$95 per kilogram. If implemented, this decision is expected to increase sales to external customers to 70,000 kilograms.

#### **Required:**

For BOTH the current selling price of CC of \$105 per kilogram and the proposed selling price of \$95 per kilogram, prepare a detailed analysis of revenue, costs and net profits of BAG.

Note: in addition, comment on other considerations that should be taken into account before this selling price change is implemented. (6 marks)

(b) The management of Division C has identified the need to achieve cost savings in order to become more competitive. They have decided that an analysis and investigation of quality costs into four sub-categories will provide a focus for performance measurement and improvement.

#### Required:

Identify the FOUR sub-categories into which quality costs can be analysed and provide examples (which must relate to Division C) of each of the four sub-categories of quality cost that can be investigated in order that overall cost savings might be achieved and hence the performance improved. (8 marks)

(20 marks)

**5** The Ornamental Company (TOC) makes and sells a range of ornamental products in Baseland. TOC employs experienced sculptors who have an excellent reputation for producing high-quality products. TOC has been approached by The Superior Garden Group (SGG) and asked to make two products. The two products are a water fountain known as 'The Fountain' and a large garden gnome known as 'The Goblin'.

The management accountant of TOC has estimated the variable costs per unit of The Fountain and The Goblin as being \$622.50 and \$103.75 respectively. She based her calculations on the following information:

(1) Product data

	The Fountain	The Goblin	Other products
Production/sales (units)	2,000	4,000	16,000
	\$000	\$000	\$000
Total direct material costs	450	150	1,200
Total direct labour cost	300	100	1,200

- (2) Total variable overheads for TOC will amount to \$2,400,000 of which 30% relates to the procurement, warehousing and use of direct materials. All other variable overheads are direct labour related.
- (3) TOC currently absorbs variable overheads into product units using company-wide percentages on total direct material cost and total direct labour cost.
- (4) SGG is willing to purchase The Fountain at \$750 per unit and The Goblin at \$150 per unit.
- (5) TOC will not undertake any work which does not yield an estimated contribution to sales ratio of 28%.
- (6) The directors of TOC are considering switching to an activity-based costing system and recently appointed a firm of management consultants to undertake a detailed review of existing operations. As part of that review, the management consultants concluded that estimated relevant cost drivers for material and labour related overhead costs attributable to The Fountain and The Goblin are as follows:

	The	The	Other
	Fountain	Goblin	products
Direct material related overheads:			
The cost driver is the volume of raw materials held to facilitate			
production of each product.			
Material proportions per product unit:	4	7	4
Direct labour related overheads:			
The cost driver is the number of labour operations performed.			
Labour operations per product unit:	6	5	4

#### **Required:**

- (a) Calculate variable cost per unit of both products using an activity-based costing approach. (8 marks)
- (b) Using the unit cost information available and your calculations in (a), prepare a financial analysis of the decision strategy which TOC may implement with regard to the manufacture of each product. (6 marks)
- (c) Critically discuss the adoption of activity-based management (ABM) in companies such as TOC. (6 marks)

(20 marks)

# **Present Value Table**

Present value of 1 i.e.  $(1 + r)^{-n}$ 

 $\label{eq:where} Where \qquad r = discount \ rate$ 

n = number of periods until payment

					Discoun	t rate (r)					
Perioa	ls										
(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	1
2	0.980	0.961	0.943	0.925	0.907	0.890	0.873	0.857	0.842	0.826	2
3	0.971	0.942	0.915	0.889	0.864	0.840	0.816	0.794	0.772	0.751	3
4	0.961	0.924	0.888	0.855	0.823	0.792	0.763	0.735	0.708	0.683	4
5	0.951	0.906	0.863	0.822	0.784	0.747	0.713	0.681	0.650	0.621	5
6	0.942	0.888	0.837	0.790	0.746	0.705	0.666	0.630	0.596	0.564	6
7	0.933	0.871	0.813	0.760	0.711	0.665	0.623	0.583	0.547	0.513	7
8	0.923	0.853	0.789	0.731	0.677	0.627	0.582	0.540	0.502	0.467	8
9	0.941	0.837	0.766	0.703	0.645	0.592	0.544	0.500	0.460	0.424	9
10	0.905	0.820	0.744	0.676	0.614	0.558	0.508	0.463	0.422	0.386	10
11	0.896	0.804	0.722	0.650	0.585	0.527	0.475	0.429	0.388	0.305	11
12	0.887	0.788	0.701	0.625	0.557	0.497	0.444	0.397	0.356	0.319	12
13	0.879	0.773	0.681	0.601	0.530	0.469	0.415	0.368	0.326	0.290	13
14	0.870	0.758	0.661	0.577	0.505	0.442	0.388	0.340	0.299	0.263	14
15	0.861	0.743	0.642	0.555	0.481	0.417	0.362	0.315	0.275	0.239	15
(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	1
2	0.812	0.797	0.783	0.769	0.756	0.743	0.731	0.718	0.706	0.694	2
3	0.731	0.712	0.693	0.675	0.658	0.641	0.624	0.609	0.593	0.579	3
4	0.659	0.636	0.613	0.592	0.572	0.552	0.534	0.516	0.499	0.482	4
5	0.593	0.567	0.543	0.519	0.497	0.476	0.456	0.437	0.419	0.402	5
6	0.535	0.507	0.480	0.456	0.432	0·410	0.390	0.370	0.352	0.335	6
7	0.482	0.452	0.425	0.400	0.376	0.354	0.333	0.314	0.296	0.279	7
8	0.434	0.404	0.376	0.351	0.327	0.305	0.285	0.266	0.249	0.233	8
9	0.391	0.361	0.333	0.308	0.284	0.263	0.243	0.225	0.209	0.194	9
10	0.352	0.322	0.295	0.270	0.247	0.227	0.208	0.191	0.176	0.162	10
11	0.317	0.287	0·261	0.237	0·215	0.195	0·178	0·162	0.148	0.135	11
12	0.286	0.257	0.231	0.208	0.187	0.168	0.152	0.137	0.124	0.112	12
13	0.258	0.229	0.204	0.182	0.163	0.145	0.130	0.116	0.104	0.093	13
14	0.232	0.205	0.181	0.160	0.141	0.125	0.111	0.099	0.088	0.078	14
15	0.209	0.183	0.160	0.140	0.123	0.108	0.095	0.084	0.074	0.065	15

## Annuity Table

# Present value of an annuity of 1 i.e. $\frac{1 - (1 + r)^{-n}}{r}$

 $\begin{array}{ll} \mbox{Where} & \mbox{r} = \mbox{discount rate} \\ & \mbox{n} = \mbox{number of periods} \end{array}$ 

Discount rate (r)

Perioa (n)	/s 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	1
2	1.970	1.942	1.913	1.886	1.859	1.833	1.808	1.783	1.759	1.736	2
3	2.941	2.884	2.829	2.775	2.723	2.673	2.624	2.577	2.531	2.487	3
4	3.902	3.808	3.717	3.630	3.546	3.465	3.387	3.312	3.240	3.170	4
5	4.853	4./13	4.580	4.452	4.329	4.212	4.100	3.993	3.890	3.791	5
6	5.795	5.601	5.417	5.242	5.076	4.917	4.767	4.623	4.486	4.355	6
7	6.728	6.472	6.230	6.002	5.786	5.582	5.389	5.206	5.033	4.868	7
8	7.652	7.325	7.020	6.733	6.463	6.210	5.971	5.747	5.535	5.335	8
9	8.566	8.162	/./86	/.435	7.108	6.802	6.515	6.24/	5.995	5.759	9
10	9.471	8.983	8.530	8.111	1.122	7.360	7.024	6./10	6.418	6.145	10
11	10.37	9.787	9.253	8.760	8.306	7.887	7.499	7.139	6.805	6.495	11
12	11.26	10.58	9.954	9.385	8.863	8.384	7.943	7.536	7.161	6.814	12
13	12.13	11.35	10.63	9.986	9.394	8.853	8.358	7.904	7.487	7.103	13
14	13.00	12.11	11.30	10.56	9.899	9.295	8.745	8.244	7.786	7.367	14
15	13.87	12.85	11.94	11.12	10.38	9.712	9.108	8.559	8.061	7.606	15
(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	1
2	1.713	1.690	1.668	1.647	1.626	1.605	1.585	1.566	1.547	1.528	2
3	2.444	2.402	2.361	2.322	2.283	2.246	2.210	2.174	2.140	2.106	3
4	3.102	3.037	2.974	2.914	2.855	2.798	2.743	2.690	2.639	2.589	4
5	3.696	3.605	3.517	3.433	3.352	3.274	3.199	3.127	3.058	2.991	5
6	4.231	4.111	3.998	3.889	3.784	3.685	3.589	3.498	3.410	3.326	6
7	4.712	4.564	4.423	4·288	4.160	4.039	3.922	3.812	3.706	3.605	7
8	5.146	4.968	4.799	4.639	4.487	4.344	4.207	4·078	3.954	3.837	8
9	5.537	5.328	5.132	4.946	4.772	4.607	4.451	4.303	4.163	4.031	9
10	5.889	5.650	5.426	5.216	5.019	4.833	4.659	4.494	4.339	4.192	10
11	6.207	5.938	5.687	5.453	5.234	5.029	4.836	4.656	4.486	4.327	11
12	6.492	6.194	5.918	5.660	5.421	5.197	4.988	4.793	4.611	4.439	12
13	6.750	6.424	6.122	5.842	5.583	5.342	5.118	4.910	4.715	4.533	13
14	6 000	6,600	C 202	C 000	E 704	E 100	E 000		1 0 0 0	4 C 1 1	1/
	0.982	0.070	6.302	6.002	5.724	5.408	5.229	5.008	4.802	4.011	14

# End of Question Paper