

Professional Level – Options Module

Advanced Performance Management

Friday 10 June 2011

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 10 and 11.

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 JHK Coffee Machines Co (JHK) manufactures coffee makers for use in bars and cafes. It has been successful over the last five years and has built and maintained a loyal customer base by making a high quality machine backed by a three-year warranty. The warranty states that JHK will recover and repair any machine that breaks down in the warranty period at no cost. Additionally, JHK always maintains sufficient spare parts to be able to quote for a repair of any of its machines made within the previous 10 years.

JHK is structured into two divisions: manufacturing/sales (M/S) and service. The board are now considering ways to improve coordination of the activities of the divisions for the benefit of the company as a whole.

The company’s mission is to maximise shareholder wealth. Currently, the board use total shareholder return (TSR) as an overall corporate measure of performance and return on investment (ROI) as their main relative measure of performance between the two divisions. The board’s main concern is that the divisional managers’ performance is not being properly assessed by the divisional performance measure used. They now want to consider other measures of divisional performance. Residual income (RI) and economic value added (EVA™) have been suggested.

A colleague has collected the following data which will allow calculation of ROI, RI and EVA™.

	Manufacturing/sales	Service
	\$m	\$m
Revenue	880	17·0
Operating costs	494	11·0
Operating profit	386	6·0
Apportioned head office costs	85	1·0
Profit before tax	301	5·0
Capital employed	1,294	38·0
The notional cost of capital used is	9% pa	
The current cost of debt is	5·5%	
The tax rate is	30%	

Operating costs include:

	Manufacturing/sales	Service
	\$m	\$m
Depreciation	88	2·7
Other non-cash expenses	4	0·3

All operating costs are tax deductible.

In addition to the divisional performance measures, the board want to consider the position of the service division.

The standard costs within the service division are as follows:

	\$
Labour (per hour)	18
Variable divisional overhead (per hour)	12
Fixed divisional overhead (per hour)	25

overheads are allocated by labour hours

Currently, the service division does two types of work. There are repairs that are covered by JHK’s warranty and there are repairs done outside warranty at the customer’s request. The service division is paid by the customer for the out-of-warranty repairs while the repairs under warranty generate an annual fee of \$10m, which is a recharge from the M/S division. The company sells 440,000 units per year and in the past, 9% of these have needed a repair within the three-year warranty. Parts are charged by the M/S division to the service division at cost and average \$75 per repair. A repair takes two hours, on average, to complete.

The board are considering amending this existing \$10m internal recharge agreement between M/S and service. There has been some discussion of tailoring one of the two transfer-pricing approaches (market price or cost plus) to meet the company’s objectives.

Although the service division has the capacity to cover all of the existing work available, it could outsource the warranty service work, as it is usually straightforward. It would retain the out-of-warranty service work as this is a higher margin business. It would then begin looking for other opportunities to earn revenue using its engineering experience. A local engineering firm has quoted a flat price of \$200 per warranty service repair provided that they obtain a contract for all of the warranty repairs from JHK.

Finally, the board are also considering a change to the information systems at JHK. The existing systems are based in the individual functions (production, sales, service, finance and human resources). The board are considering the implementation of a new system based on an integrated, single database that would be accessible at any of the company's five sites. The company network would be upgraded to allow real-time input and update of the database. The database would support a detailed management information system and a high-level executive information system.

Required:

Write a report to the finance director to:

- (a) Evaluate the divisional performance at JHK and critically discuss the proposed measures of divisional performance.** (12 marks)
- (b) Outline the criteria for designing a transfer pricing system and evaluate the two methods discussed of calculating the transfer price between the service and M/S divisions. (Perform appropriate calculations)** (12 marks)
- (c) Evaluate the potential impact of the introduction of the new executive information system at JHK on performance management.** (5 marks)

Professional marks will be awarded for the format, style and structure of the discussion of your answer.

(4 marks)

(33 marks)

2 Pharmaceutical Technologies Co (PT) is a developer and manufacturer of medical drugs in Beeland. It is one of the 100 largest listed companies on the national stock exchange. The company focuses on buying prospective drugs that have shown initial promise in testing from small bio-engineering companies. PT then leads these through three regulatory stages to launch in the general medical market. The three stages are:

1. to confirm the safety of the drug (does it harm humans?), in small scale trials;
2. to test the efficacy of the product (does it help cure?), again in small scale trials; and
3. finally, large scale trials to definitively decide on the safety and efficacy of the product.

The drugs are then marketed through the company's large sales force to health care providers and end users (patients). The health care providers are paid by either health insurance companies or the national government dependent on the financial status of the patient.

The Beeland Drug Regulator (BDR) oversees this testing process and makes the final judgement about whether a product can be sold in the country.

Its objectives are to protect, promote and improve public health by ensuring that:

- medicines have an acceptable balance of benefit and risk;
- the users of these medicines understand this risk-benefit profile; and
- new beneficial product development is encouraged.

The regulator is governed by a board of trustees appointed by the government. It is funded directly by the government and also through fees charged to drug companies when granting licences to sell their products in Beeland.

PT has used share price and earnings per share as its principal measures of performance to date. However, the share price has underperformed the market and the health sector in the last two years. The chief executive officer (CEO) has identified that these measures are too narrow and is considering implementing a balanced scorecard approach to address this problem.

A working group has drawn up a suggested balanced scorecard. It began by identifying the objectives from the board's medium term strategy:

- Create shareholder value by bringing commercially viable drugs to market
- Improve the efficiency of drug development
- Increase shareholder value by innovation in the drug approval process

The working group then considered the stakeholder perspectives:

- Shareholders want a competitive return on their investment
- Purchasers (governments, insurers and patients) want to pay a reasonable price for the drugs
- Regulators want an efficient process for the validation of drugs
- Doctors want safe and effective drug products
- Patients want to be cured

Finally, this leads to the proposed scorecard of performance measures:

- Financial – share price and earnings per share
- Customer – number of patients using PT products
- Internal business process – exceed industry-standard on design and testing; time to regulatory approval of a product
- Learning and growth – training days undertaken by staff; time to market of new product; percentage of drugs bought by PT that gain final approval.

The balanced scorecard now needs to be reviewed to ensure that it will address the company's objectives and the issues that it faces in its business environment.

Required:

- (a) Describe how the implementation of a balanced scorecard delivers a range of performance measures aligned with the corporate strategy. (4 marks)
- (b) Evaluate the performance measures proposed for PT's balanced scorecard. (10 marks)
- (c) Identify and analyse the influence of four different external stakeholders on the regulator (BDR). (6 marks)
- (d) Using your answer from part (c), describe how the application of the balanced scorecard approach at BDR would differ from the approach within PT. (7 marks)

(27 marks)

Section B – TWO questions ONLY to be attempted

3 APX Accountancy (APX) is an accountancy partnership with 12 branches covering each of the main cities of Emland. The business is well established, having organically grown over the last 40 years to become the second largest non-international practice in Emland. The accountancy market is mature and expands and contracts along with the general economic performance of Emland.

APX offers accountancy, audit, tax and business advisory services. The current business environment in Emland is dominated by a recession and the associated insolvency work is covered within the business advisory area of APX.

At present, the practice collects the following information for strategic performance evaluation:

	Audit	Tax	Business Advisory	Total
Revenue (\$m)				
APX	69.1	89.2	64.7	223.0
Accounting industry	557.0	573.0	462.0	1,592.0
Change in revenue on previous year				
APX	3.0%	8.0%	22.0%	10.0%
Accounting industry	2.5%	4.5%	16.0%	6.8%
Profit margin at APX	6.4%	7.8%	10.5%	8.1%
Customer service score (1 to 5 with 5 being excellent)				
APX	3.4	3.9	4.1	

The above figures are for the most recent financial year and illustrate the metrics used by APX. Equivalent monthly figures are produced for each of the monthly partner meetings which review practice performance.

The staff are remunerated based on their grade, with non-partners obtaining a bonus of up to 10% of basic salary based on their line managers' annual review. The partners receive a fixed salary with a share of profit which depends on their contractual responsibilities within the partnership.

The managing partner of APX is dissatisfied with the existing performance management system, as she is not convinced that it is helping to achieve the long-term goal of expanding and ultimately floating the business on the national stock exchange. Therefore, she has asked you to consider the impact of applying Fitzgerald and Moon's building block approach to performance management in the practice.

Required:

- (a) Briefly describe Fitzgerald and Moon's building block model of performance management.** (4 marks)
- (b) Evaluate the existing performance management system at APX by applying the building block model.** (8 marks)
- (c) Explain the main improvements the introduction of a building block approach to performance management could provide, and suggest specific improvements to the existing system of performance measures at APX in light of the introduction of the building block model.** (8 marks)

(20 marks)

4 ENT Entertainment Co (ENT) is a large, diversified entertainment business based in Teeland. The company's objective is the maximisation of shareholder wealth for its family owners. It has four divisions:

1. Restaurants
2. Cafes
3. Bars
4. Dance clubs

Recently, ENT's board have identified that there are problems in managing such a diversified company. They have employed consultants who have recommended that they should perform a Boston Consulting Group (BCG) analysis to understand whether they have the right mix of businesses. The chief executive officer (CEO) has questioned whether using this analysis is helpful in managing the group's performance. A business analyst has prepared information on each division in the table below.

Revenue (\$m)	Actual 2010	Actual 2011	Forecast 2012	Forecast 2013
Restaurants				
ENT	54	56	59	62
Market sector	10,752	10,860	10,968	10,968
Cafes				
ENT	31	34	41	47
Market sector	3,072	3,348	3,717	4,051
Bars				
ENT	349	342	336	336
Market sector	9,984	9,784	9,491	9,206
Dance clubs				
ENT	197	209	219	241
Market sector	1,792	1,900	2,013	2,195

In Teeland, the economy is generally growing at about 2% per annum. The restaurant, cafe and bar sectors are all highly fragmented with many small operators. Consequently, a market share of more than 3.0% is considered large as that is comparable to the share of the largest operators in each sector. There are fewer small late night dance club operators and the market leader currently holds a 15.0% market share. There have not been many new developments within the divisions except for a new wine bar format launched by the bars division which has surprised the board by its success.

Each of the division's performance is measured by economic value-added (EVA™). The divisional managers have a remuneration package that is made up in two equal parts by a salary set according to industry norms and a bonus element which is based on achieving the cost budget numbers set by the company board. The chairman of the board has been examining the consistency of the overall objective of the business, the divisional performance measure and the remuneration packages at divisional level. He has expressed the worry that these are not properly aligned and that this might lead to dysfunctional behaviour by the divisional management.

Required:

- (a) **Perform a BCG analysis of ENT's business and use this to evaluate the company's performance.** (7 marks)
- (b) **Critically evaluate this BCG analysis as a performance management system at ENT.** (7 marks)
- (c) **Evaluate the divisional managers' remuneration package in light of the divisional performance system and your BCG analysis.** (6 marks)

(20 marks)

- 5 PLX Refinery Co is a large oil refinery business in Kayland. Kayland is a developing country with a large and growing oil exploration and production business which supplies PLX with crude oil. Currently, the refinery has the capacity to process 200,000 barrels of crude oil per day and makes profits of \$146m per year. It employs about 2,000 staff and contractors. The staff are paid \$60,000 each per year on average (about twice the national average pay in Kayland).

The government of Kayland has been focused on delivering rapid economic growth over the last 15 years. However, there are increasing signs that the environment is paying a large price for this growth with public health suffering. There is now a growing environmental pressure group, Green Kayland (GK), which is organising protests against the companies that they see as being the major polluters.

Kayland's government wishes to react to the concerns of the public and the pressure groups. It has requested that companies involved in heavy industry contribute to a general improvement in the treatment of the environment in Kayland.

As a major participant in the oil industry with ties to the nationalised oil exploration company (Kayex), PLX believes it will be strategically important to be at the forefront of environmental developments. It is working with other companies in the oil industry to improve environmental reporting since there is a belief that this will lead to improved public perception and economic efficiency of the industry. PLX has had a fairly good compliance record in Kayland, with only two major fines being levied in the last eight years for safety breaches and river pollution (\$1m each).

The existing information systems within PLX focus on financial performance. They support financial reporting obligations and allow monitoring of key performance metrics such as earnings per share and operating margins. Recent publications on environmental accounting have suggested there are a number of techniques (such as input/output analysis, activity-based costing (ABC) and a lifecycle view) that may be relevant in implementing improvements to these systems.

PLX is considering a major capital expenditure programme to enhance capacity, safety and efficiency at the refinery. This will involve demolishing certain older sections of the refinery and building on newly acquired land adjacent to the site. Overall, the refinery will increase its land area by 20%.

Part of the refinery extension will also manufacture a new plastic, Kayplas. Kayplas is expected to have a limited market life of five years after which it will be replaced by Kayplas2. The refinery accounting team have forecast the following data associated with this product and calculated PLX's traditional performance measure of product profit for the new product:

All figures are \$m's

	2012	2013	2014	2015	2016
Revenue	25.0	27.5	30.1	33.2	33.6
Costs					
Production costs	13.8	15.1	16.6	18.3	18.5
Marketing costs	5.0	4.0	3.0	3.0	2.0
Development costs	5.6	3.0	0.0	0.0	0.0
Product profit	0.6	5.4	10.5	11.9	13.1

Subsequently, the following environmental costs have been identified from PLX's general overheads as associated with Kayplas production.

	2012	2013	2014	2015	2016
Waste filtration	1.2	1.4	1.5	1.9	2.1
Carbon dioxide exhaust extraction	0.8	0.9	0.9	1.2	1.5

Additionally, other costs associated with closing down and recycling the equipment in Kayplas production are estimated at \$18m in 2016.

The board wishes to consider how it can contribute to the oil industry's performance in environmental accounting, how it can implement the changes that this might require and how these changes will benefit the company.

Required:

- (a) **Discuss different cost categories that would aid transparency in environmental reporting both internally and externally at PLX.** (4 marks)
- (b) **Explain and evaluate how the three environmental accounting techniques mentioned can assist in managing the environmental and strategic performance of PLX.** (9 marks)
- (c) **Evaluate the costing approach used for Kayplas's performance compared to a lifecycle costing approach, performing appropriate calculations.** (7 marks)

(20 marks)

Present Value Table

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

Where r = discount rate
 n = number of periods until payment

		<i>Discount rate (r)</i>										
<i>Periods</i>		1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	
(n)												
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. $\frac{1 - (1 + r)^{-n}}{r}$

Where r = discount rate
 n = number of periods

		<i>Discount rate (r)</i>										
<i>Periods</i>		1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	
(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	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	4.713	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	7.786	7.435	7.108	6.802	6.515	6.247	5.995	5.759	9	
10	9.471	8.983	8.530	8.111	7.722	7.360	7.024	6.710	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	6.982	6.628	6.302	6.002	5.724	5.468	5.229	5.008	4.802	4.611	14	
15	7.191	6.811	6.462	6.142	5.847	5.575	5.324	5.092	4.876	4.675	15	

End of Question Paper