

Professional Level – Options Module

# Advanced Performance Management

March/June 2017 – Sample Questions



**Time allowed:** 3 hours 15 minutes

This question paper is divided into two sections:

Section A – This ONE question is 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 question paper until instructed by the supervisor.**

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

Think Ahead

**ACCA**

P5  
Paper

The Association of  
Chartered Certified  
Accountants

**Section A – This ONE question is compulsory and MUST be attempted**

1 Dargeboard Services (DS), a listed company, provides facilities management (FM) services where it manages such activities as cleaning, security, catering and building services on behalf of its clients. Clients can outsource to DS a single activity or often outsource all of these aspects in a full service contract.

The mission of DS is ‘to give the shareholders maintainable, profitable growth by developing the best talent to provide world-class services with maximum efficiency.’

The board have asked the chief executive officer (CEO) to review the effectiveness of Dargeboard’s systems for performance measurement and management. She has turned to you to begin this process by considering the strategic performance dashboard of DS. She has supplied the most recent example in Appendix 1.

She wants a report to the board which will cover three aspects of strategic performance reporting at DS. First, it should address whether the current set of key performance indicators (KPIs) measure the achievement of the mission by showing how each one links to all or part of the mission. She does not want suggestions of new indicators. Second, taking each of the current indicators in turn she wants the assumptions underlying the calculation of the indicators examined. There has been a suggestion made in the press that DS is producing a biased set of results aimed to mislead the markets. This would then artificially boost the share price and so boost the value of the senior management’s share holdings. Third, the report should evaluate the other presentational aspects of the dashboard against best practice.

The idea of employee share ownership has always been at the heart of DS’ remuneration schemes. Its aim is to support an entrepreneurial culture and is a key differentiator in the market for new employees. The current reward system grants shares based on the appraisal of the individual by the line manager against vague categories such as leadership and entrepreneurship. The results of this scheme have been that only about 5% of staff received their maximum possible bonus in previous years and half of them received no bonus at all. Increasingly, this has led to the staff ignoring the reward scheme and describing it as ‘only for the bosses’ favourite people’.

In response to this, the board have been discussing methods of analysing and improving the rewards system at DS. One non-executive director suggested using Fitzgerald and Moon’s building block model. The CEO was asked to consider this as a project separate from the issues of performance measurement mentioned above. She will select suitable indicators from the dimensions but currently needs you to explain to the board what is meant by results and determinants in this context and how the dimensions link to standards and targets. Finally, she believes that there are two types of reward scheme which might suit DS and wants an evaluation of their relative strengths and weaknesses. The scheme details are given in Appendix 2.

**Required:**

**Write a report to the board to:**

- (i) Evaluate the links between the current key performance indicators at DS in Appendix 1 and its mission. (8 marks)**
- (ii) Assess the assumptions and definitions used in the calculation of the current set of key performance indicators in Appendix 1. (12 marks)**
- (iii) Evaluate the other aspects of reporting in the DS performance dashboard given at Appendix 1. (8 marks)**
- (iv) Explain how the building block model works as required by the CEO. (6 marks)**
- (v) Assess the two reward schemes given in Appendix 2. (12 marks)**

Professional marks will be awarded for the format, style and structure of the discussion of your answer. (4 marks)

**(50 marks)**

## Appendix 1

### Dargeboard Services: Strategic performance dashboard

Year to 31 December 2016

	Cleaning	Security	Catering	Building services	Full service	Total	Total 2015
Operating profit margin	6.5%	6.4%	6.5%	4.9%	5.9%	5.9%	5.8%
Secured revenue	76%	85%	92%	88%	93%	88%	87%
Management retention	86%	74%	87%	82%	89%	85%	87%
Order book (\$m)	1,160	875	357	1,553	3,359	7,304	6,807
Organic revenue growth	7.1%	4.3%	5.0%	8.1%	7.9%	7.2%	4.6%
ROCE						17.2%	16%

#### KPI definitions and notes

1. Cleaning, security, catering and building services headings are for single service contracts.
2. No commentary is provided as the CEO talks the board through the dashboard at each board meeting.
3. Secured revenue is long-term recurring revenue. This is the percentage of budgeted revenue which is already contracted. The budget is often not completed until well into the year as it is a complex process. In 2016, the original budget showed revenue of \$1,565m with the final budget signed off at the end of Q1 showing \$1,460m. The secured (contracted) revenue for the period was \$1,285m. The accounts show a year end revenue of \$1,542m.
4. Management retention is the percentage of managers who were still employed throughout the whole year. The figure only includes those employees on full-time contracts (about 65% of all managers).
5. Order book is the total cash value of future contracted revenue. DS has contracts which run up to 10 years into the future.
6. Operating profit margin. This excludes exceptional items such as the reorganisation of the catering business which cost \$55m in 2016, where revenue was \$245m.
7. Organic revenue growth is calculated by using the total revenue figure as reported in the accounts. It includes net acquisitions which brought in revenue of \$48m in 2016.
8. Return on capital employed (ROCE). Capital employed is total assets less current liabilities from the statement of financial position.

## Appendix 2

The CEO is considering two schemes, one based on the current scheme and a new scheme.

### Scheme 1 (based on the current scheme)

The reward system grants shares in DS based on the appraisal of the individual by the line manager against vague categories (leadership and entrepreneurship). The line managers have been informed that their bonus will in turn be partly dependent on how well they perform this appraisal. The expectation will be that as a result, 20% of staff will receive their maximum possible bonus and 20% will receive no bonus.

### Scheme 2 (the new one)

Under scheme 2, employee targets are to be derived from the strategic indicators depending on the employee's area of responsibility. The senior management (with help from line management where appropriate) will cascade down the strategic indicators to the relevant operational or tactical level for that employee.

There will be five targets set by senior and line management in consultation and the employee will then get up to 50% on top of their basic salary as a bonus (10 percentage points for each of the targets achieved).

## Section B – TWO questions ONLY to be attempted

2 Pitlane Electronic Components (Pitlane) manufactures components for use in the electricity distribution network in Deeland. Demand from Pitlane's biggest customer, to replace identical but worn out components, has been constant for many years. Pitlane has recently renewed an exclusive long-term supply agreement with this customer, who has always agreed to buy the components for their total standard cost plus a fixed profit margin of 15%. Variances between standard and actual costs of the components are negligible. Pitlane runs several production lines in two factories located in different areas of Deeland. The factories' layout is poorly designed and the production process requires components to be transported around and between the factories.

The Deeland government wants to encourage renewable electricity generation. It is offering a three-year subsidy scheme, beginning in 2018, for consumers to have solar panels installed on the roofs of their homes. As an added incentive, businesses will be exempt from tax on profits made on the sale of solar panels and related components.

To take advantage of this scheme, Pitlane has built a prototype of a new electrical component, known as the 'Booster', which increases the output from domestic solar panels. The Booster will be sold to installers of solar panels and not directly to consumers. Pitlane's marketing department has estimated market data for the duration of the scheme based on a similar scheme in Veeland (Appendix 1). As a result of its products being unchanged for many years, Pitlane has little recent experience of developing new products and estimating costs and potential revenues from them. It is expected that many competitor products will be launched during the scheme, at the end of which demand is expected to fall greatly, and production of the Booster will discontinue.

Pitlane's shareholders insist that for the Booster project to go ahead, it must meet the financial performance objective of achieving a 15% net profit margin, after all costs, for the duration of the scheme.

The Booster's total fixed costs during the scheme are estimated to be \$10m, including \$2.8m upfront development costs to enable the Booster to communicate the amount of solar energy generated directly to consumers' smartphones via an app. The product development team at Pitlane believes this feature, and the use of highest quality packaging, will allow it to charge 10% more than the average price of its competitors. The marketing team, however, has questioned the overall value of these two features and whether customers would be prepared to pay extra for them, as most of the Deeland population do not yet own smartphones.

Pitlane has estimated the direct costs for the Booster (Appendix 2). The largest direct cost is for the four main sub-components. These are bought in bulk from six different suppliers in Deeland, though all are readily available from suppliers worldwide. The sub-components are fragile. During production of the Booster prototype, many sub-components were found to be damaged during the production process by workers incorrectly assembling them. This resulted in the completed prototype Boosters being scrapped after testing by the quality control department. The manufacturing director is concerned that the incorrect assembly of sub-components by workers may mean that it may not be profitable for Pitlane to start full scale production of Boosters. To counteract these quality problems, Pitlane will employ more highly skilled workers, who are paid around 30% more than most other workers in the business which is accounted for in the cost estimate given in Appendix 2. Pitlane staff have never been encouraged to suggest any ways to improve the manufacturing process.

Pitlane's directors are concerned that the Booster project will not meet the shareholders' financial performance objective. They have asked you, as a consultant experienced in target costing, Kaizen costing and other Japanese business practices, for your advice.

### Required:

- (a) Calculate the cost gap per unit in each of the three years of the Booster's life, taking into account all estimated costs. (6 marks)
- (b) Advise on the extent to which target costing would help Pitlane to achieve the financial performance objective set by the shareholders. (12 marks)
- (c) Advise Pitlane how Kaizen costing may be used to help the Booster project achieve the financial performance objective set by the shareholders. (7 marks)

**(25 marks)**

**Appendix 1 – Estimated market data for Booster**

	<b>2018</b>	<b>2019</b>	<b>2020</b>
Total market size (units)	600,000	500,000	460,000
Average price of competitors products (\$/unit)	180	170	160
Booster market share of total market	10%	15%	20%

**Appendix 2 – Estimated unit direct cost of Booster**

	<b>\$</b>
Sub-components	94
Assembly labour	21
Packaging	10
Distribution	2
Internal transport and handling	7
Total	<u>134</u>

3 Nelson, Jody and Nigel (NJN) operates a warehouse and distribution centre, storing and distributing 5,000 product lines on behalf of its client, an overseas sports equipment manufacturer.

NJN receives goods in shipping containers, which should include a packing list of the items they contain. Sometimes, packing lists are lost in transit and the manufacturer is asked for duplicates. Packing lists are manually input into NJN's warehouse information system (WIS) in batches, usually within 48 hours of the goods being received. Goods are first unpacked into a sorting area, and later moved to wherever there is available warehouse space once the packing list has been input. The WIS records the location within the warehouse where each item is located. The client's customers, who are retail stores, place orders by email, and do not currently have access to real-time inventory levels in NJN's warehouse.

Each morning picking lists are printed in the warehouse office. These lists show the quantities of items to be picked and the items' 12 digit product codes. Staff use these codes to retrieve items from the warehouse locations for despatch to retailers. In 8% of picking lists, at least one item is not in the location or does not have the quantity specified by the WIS. As a result, the item is not despatched, or the wrong item is picked. A small team investigates these discrepancies, using special reports which the warehouse manager extracts from the WIS. The team manually reconciles quantities of missing items in the warehouse to the sports equipment manufacturer's own records of the items which should be in inventory. If missing items cannot be found, the customer is informed via an email that they are unavailable.

The sports equipment manufacturer has a service level agreement with NJN, covering the accuracy of picking and the proportion of customers' orders successfully fulfilled. NJN's performance on these has deteriorated, especially when there is increased seasonal demand for certain products. At these times staff are under increased pressure to pick items quickly, and so picking accuracy deteriorates and absenteeism increases. There have also been accidents where goods have not been safely placed or safely picked from warehouse locations at busy times. These accidents have resulted in minor injuries to some employees.

The sports equipment manufacturer has threatened to end NJN's contract if performance does not improve. In response, NJN has recruited more staff to investigate discrepancies between items physically in warehouse locations, and those shown on the WIS at busy periods. It has also begun a series of cyclical inventory counts where every product line is counted every month to correct the quantities and locations shown on the WIS. NJN has rented an additional nearby warehouse in which to sort incoming items before they are put away.

NJN has hired a management consultant who is an expert in 'lean' principles and the application of these to management information systems. She believes that the WIS is wasteful, not adding value to the business or to its customers, and has suggested that NJN would benefit from the application of lean principles to this system.

She has suggested three proposals:

- that NJN reorganise the warehouse by storing high volume items close to the despatch area,
- shut down the additional warehouse, and
- discontinue the cyclical inventory counts.

To help with the adoption of lean principles in the warehouse reorganisation, the management consultant recommends NJN apply the '5Ss'\* of lean principles, and she has suggested performance metrics which can be used to evaluate NJN's progress towards adopting these (Appendix 1).

\*Structurise, Systemise, Sanitise, Standardise, Self-discipline.

**Required:**

- (a) Assess whether NJN's existing warehouse information system (WIS) is effective in reducing waste and adding value in NJN's workflow.** (10 marks)
- (b) Advise whether the three proposals suggested by the management consultant will help to eliminate the different types of waste identified under lean principles.** (6 marks)
- (c) Evaluate whether the application of each of the 5Ss following the warehouse reorganisation at NJN is adequately measured by the performance metrics in Appendix 1.** (9 marks)

**(25 marks)**

### **Appendix 1 – Performance measures for 5Ss relating to warehouse reorganisation**

1. Warehouse manager's daily assessment of the tidiness of the warehouse on a scale of 1–10.
2. The proportion of inventory not stored in order of its alphabetical description with products with names beginning with 'A' nearest the despatch area and 'Z' furthest away.
3. The number of accidents caused by goods being incorrectly stored or picked.

- 4 Jenson, Lewis and Webb (JLW) manufactures tubes of acrylic paint for sale to artists and craft shops in Kayland and Seeland. JLW has two divisions, Domestic division and Export division, both based in Kayland. All costs are incurred in Kayland Dollars (\$KL). Domestic division is an investment centre and sells only to customers in Kayland. Export division is a profit centre and exports all its products to Seeland, where customers are invoiced in Seeland Pounds (£SL), at prices fixed at the start of the year. The objective of JLW is to maximise shareholder wealth.

At the beginning of the year ended 31 December 2016, the head office at JLW purchased new production machinery for Export division for \$KL2.5m, which significantly increased the production efficiency of the division. Managers at Domestic division were considering purchasing a similar machine, but decided to delay the purchase until the beginning of the following financial year. On 30 June 2016 the \$KL weakened by 15% against the £SL, after which the exchange rate between the two currencies has remained unchanged.

The managers of the two divisions are currently appraised on the performance of their own divisions, and are awarded a large bonus if the net profit margin of their division exceeds 8% for the year. Extracts from the management accounts for the year ended 31 December 2016 for both divisions are given in Appendix 1. On being told that she would not be receiving a bonus for the financial year, the manager of Export division has commented that she has had difficulty in understanding the bonus calculations for her division as it is not based on traceable profit, which would consider only items which relate directly to the division. She also does not believe it is appropriate that the net profit margin used to appraise her performance is the same as 'that which is used to evaluate the performance of Export division itself'. She has asked for a meeting with the directors to discuss this further.

JLW's directors intend to award divisional managers' bonuses on the basis of net profit margin achieved in 2016 as planned, but have asked you as a performance management consultant for your advice on the comments of the Export division manager in advance of their meeting with her. One director has also suggested that, in future, economic value added (EVA<sup>TM</sup>) may be a good way to evaluate and compare the performance of the two divisions. You are asked for your advice on this too, but you have been specifically asked not to attempt a calculation of EVA<sup>TM</sup>.

**Required:**

- (a) **Evaluate the comments of the Export division manager that the net profit margin used to appraise her own performance should be different from that used to appraise the performance of Export division itself.** (7 marks)
- (b) **Recommend, using appropriate calculations, whether the manager of Export division should receive her bonus for the year.** (8 marks)
- (c) **Advise whether the use of economic value added (EVA<sup>TM</sup>) is an appropriate measure of performance of the two divisions. You are not required to perform an EVA<sup>TM</sup> calculation.** (10 marks)

**(25 marks)**



Appendix 1 – Extracts from management accounts for year ended 31 December 2016

\$KL'000	Export division	Domestic division
Revenue <sup>1</sup>	8,000	12,000
Cost of sales	<u>(4,800)</u>	<u>(7,800)</u>
Gross profit	3,200	4,200
Depreciation	(395)	(45)
Allocated head office costs	(360)	(540)
Other overheads <sup>2</sup>	<u>(1,900)</u>	<u>(2,300)</u>
Net profit	545	1,315
Net profit margin on revenue	6.8%	11.0%
Capital employed <sup>3</sup>	6,500	8,500

<sup>1</sup> Revenue accrues evenly over the financial year.

<sup>2</sup> Other overheads for Domestic division include the creation of a bad debt provision equivalent to \$KL75,000 for a wholesale customer who had financial difficulties during the year, and \$KL90,000 for advertising a new range of paints launched at the end of the year.

<sup>3</sup> JLW is financed in equal proportions by debt and equity. The cost of equity is 8% and the after tax cost of debt is 5%.

### 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>											
(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	0.914	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	0.350	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

Periods (n)	Discount rate (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	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	10.368	9.787	9.253	8.760	8.306	7.887	7.499	7.139	6.805	6.495	11
12	11.255	10.575	9.954	9.385	8.863	8.384	7.943	7.536	7.161	6.814	12
13	12.134	11.348	10.635	9.986	9.394	8.853	8.358	7.904	7.487	7.103	13
14	13.004	12.106	11.296	10.563	9.899	9.295	8.745	8.244	7.786	7.367	14
15	13.865	12.849	11.938	11.118	10.380	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**