

Strategic Professional – Options

Advanced Performance Management (APM)

September/December 2019 –
Sample Questions



APM

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 – BOTH questions are compulsory and MUST 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

The Association of
Chartered Certified
Accountants

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The question paper begins on page 3.**

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

1 Company information

Arkaig Manufacturing (Arkaig) is a world-leading, listed manufacturer of production machinery for other industries. It has customers in the mining, cement and chemicals sectors and seeks to provide them with the equipment, software and service for their products.

The aim of Arkaig is ‘to maximise shareholder wealth by providing world-class, tailored automation solutions, which use technology innovatively, show improved machine downtime and reduced energy consumption for our customers.’ This is supported by an entrepreneurial culture among all employees who should ‘treat the business as if they owned it’.

Strategic internal performance reporting

There has been criticism of the business’ current performance reporting by one of the directors at a recent board meeting. However, the chief executive officer (CEO) believes that the reporting system, which he put in place two years ago, is an excellent one.

In preparation for the next board meeting, the CEO needs an evaluation of the current report. As an example, a recent report used by the board for its strategic review is given in Appendix 1. The CEO stressed that it was the report and not the performance of the business which should be evaluated.

Economic value added

Another criticism of the performance management of Arkaig was that it lacked an over-arching measure of performance. As a result, the CEO is considering the introduction of economic value added (EVA™) to replace return on capital employed (ROCE) as a principal performance measure. The CEO wants to present this idea at the next board meeting and so needs an illustrative calculation of EVA™ along with a brief explanation of its benefits as a replacement for ROCE. The data in Appendix 2 should be used for the calculation.

Performance hierarchy

The earlier work requested focuses on the strategic level of the organisation and the CEO is keen to ensure that the other levels of the organisation (tactical and operational) do not get ignored in this discussion. However, before undertaking any specific work, he wants to make a presentation at the next board meeting. Therefore, he wants you to provide him with a brief description of the nature of the information required for performance measurement at these three different levels and explain how this information is influenced by the extent of planning and controlling activity at each of the levels of the performance hierarchy. He wants examples which would be relevant to Arkaig to illustrate these points in order that the presentation is made more concrete for the directors. He will then prepare the slides for the presentation himself.

Value chain

In order to analyse the operational aspects of Arkaig, the CEO has employed a consultant to produce a value chain analysis (Appendix 3). The value chain analysis has highlighted certain critical activities within Arkaig where there was concern about the performance management aspects. The CEO would like you to assess the performance management implications of the consultant’s comments on the critical areas identified for Arkaig.

Required:

It is now 1 September 20X5.

Write a report to the chief executive officer (CEO) of Arkaig to respond to his instructions for work on the following areas:

- (i) the performance reporting at Arkaig; (11 marks)
- (ii) the introduction of economic value added (EVA™); (15 marks)
- (iii) the information requested on the performance hierarchy; (10 marks)
- (iv) the value chain analysis prepared by the consultant. (10 marks)

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

(50 marks)

Appendix 1

Arkaig: Strategic performance report

	Year ended 30 June 20X5				Previous year	Industry average
	Mining	Cement	Chemicals	Total	Total	
	20X5	20X5	20X5	20X5	20X4	
Orders (\$m)	5,204	6,898	5,900	18,002	17,878	
Revenue (\$m)	5,100	6,756	5,784	17,640	18,166	
Revenue growth (%)	0	-1.8	-6.5	-2.9		
Net profit (\$m)	220	350	302	872	798	
Net profit margin (%)	4.3	5.2	5.2	4.9	4.4	4.6
ROCE (%)	16.1	17.3	17.4	16.8	15.7	15

Commentary:

1. The company has increased its return on capital employed on the previous year and exceeded the industry benchmark.
2. Revenue has fallen by 2.9% on the previous year but the order book has grown by 0.7%, indicating sustained sales levels going forward.
3. The net profit margin has increased to 4.9%, again exceeding the industry benchmark of 4.6%.
4. The company has continued to emphasise its entrepreneurial culture to its employees.

Appendix 2

Economic value added

The following details have been gathered for the 20X5 EVA™ calculation:

1. The operating profit of Arkaig was \$3,175m. This includes a depreciation charge of \$1,780m.
2. Amortisation charges of \$95m in the year have been incurred.
3. The corporation tax rate is 25%. Tax of \$694m was paid in the year.
4. The company has spent \$90m this year and each year for the previous 10 years on long-term brand building.
5. The economic depreciation for the year is estimated to be \$1,907m.
6. This year and each year for the previous 10 years, economic depreciation has included a \$10m write-down of the value of brand building.
7. Research and development expenditure of \$705m was incurred in the period leading to an economic asset of \$4,233m at the year end.
8. Interest paid in the period was \$213m.
9. Capital employed during the period (from the statement of financial position):

	\$m
Opening	19,404
Change in period	977
Closing	<u>20,381</u>

10. Costs of capital:

Equity	12.0%
Debt (pre-tax)	3.8%

11. Gearing: 45% debt/(equity + debt)

Appendix 3

Value chain analysis

Primary activities:

- Inbound logistics (receiving, handling and storing inputs) – Warehouse and distribution operations are controlled by an old information system which feeds into operations management information.
- Operations – Not a critical area of concern at present.
- Outbound logistics (delivering the product to customers) – Warehouse and distribution operations are controlled by an old information system which is fed from operations management information.
- Marketing and sales – Not a critical area of concern at present.
- After-sales service – This is an important area of revenue generation for Arkaig. However, certain directors are worried about over-focusing on this activity.

Secondary activities:

- Procurement – Not a critical area of concern at present.
- Technology development – Not a critical area of concern at present.
- Human resource management – Arkaig aims to recruit, retain and motivate staff who can fit with its entrepreneurial culture.
- Firm infrastructure (planning, finance, quality control, legal matters) – Not a critical area of concern at present.

Note: The areas noted as not critical do not require comment.

Section B – BOTH questions are compulsory and MUST be attempted

2 Company information

Veyatie is a fashion clothing retailer which caters for both male and female customers of all adult age groups. Veyatie has 10 retail stores. The company's information systems are basic for a business of its size and focus solely on financial information.

Veyatie's strategic objectives are 'To maximise shareholder wealth by increasing the number of retail stores, making our customers completely satisfied, ensuring our stores are attractive and offering the widest range of fashion clothing in our market.'

The Veyatie board has seen little need for non-financial performance indicators (NFPIs) so far, preferring instead to focus attention on cost control and working capital management. As a result, all senior managers are appraised against targets for operating profit margin, inventory turnover and the current ratio.

Customer satisfaction

Following a period of poor financial performance, Veyatie began collecting data on one aspect of non-financial performance, customer satisfaction, as the board had been advised that this is a key driver of financial performance.

The data collection began at the start of Quarter 3 20X3 and there is now data available for two complete years (Appendix 1). Veyatie has found it difficult to interpret this qualitative data and also the trends in this data. Some board members question its usefulness and propose reverting back to reporting just the financial indicators which they are used to.

Veyatie collects this data by asking customers to rate their satisfaction with their visit to the store as they are paying for their items. The scores range from 1 (completely dissatisfied) to 5 (completely satisfied). The mean score is the performance indicator reported to the board and the senior managers. Customers are encouraged to leave a score by having their names entered into a quarterly prize draw to win tickets to major football matches, concerts and amusement parks.

Balanced scorecard

A consultant has suggested to the board that the introduction of a balanced scorecard approach may improve business performance, as Veyatie is unlikely to achieve all of its strategic objectives in the near future. The board has already heard what the benefits of the balanced scorecard are, but are sceptical about these.

The board has asked for your advice on the problems of implementing and using the balanced scorecard approach at Veyatie. One aspect of this advice should focus on the selection of suitable performance measures and the consultant has already chosen some performance measures which could be included in a balanced scorecard at Veyatie (Appendix 2). These have been provided to help you illustrate your advice on the problems of using the balanced scorecard.

Note: The board would welcome your advice on how to refine the performance measures as part of your advice on the problems of using and implementing the balanced scorecard, but does not want you to give a detailed evaluation of the advantages and disadvantages of each performance measure, or to suggest completely new measures.

Required:

It is now 1 September 20X5.

- (a) **Assess the difficulties in using and interpreting the customer satisfaction data at Veyatie.** (10 marks)
- (b) **Advise the board as requested of the problems of implementing and using the balanced scorecard approach at Veyatie.** (15 marks)

(25 marks)

Appendix 1

Customer satisfaction data

Percentage of customers giving customer satisfaction scores* between 1 and 5

Narrative	Score	20X3		20X4				20X5	
		Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Completely satisfied	5	5%	5%	50%	5%	5%	0%	5%	45%
Very satisfied	4	10%	5%	0%	14%	15%	5%	20%	1%
Satisfied	3	70%	65%	0%	56%	50%	65%	45%	1%
Somewhat dissatisfied	2	10%	20%	0%	20%	25%	25%	25%	8%
Completely dissatisfied	1	5%	5%	50%	5%	5%	5%	5%	45%
Mean score		3.00	2.85	3.00	2.94	2.90	2.70	2.95	2.93

* Satisfaction scores were collected from a large number of customers when paying for their items.

Appendix 2

Perspective

Financial

Performance measure

Operating profit margin

Inventory turnover

Current ratio

Customer

Customer satisfaction

Market share

Internal business processes

Stock out percentage¹

Learning and innovation

Total employee training days²

Notes:

1. Stock out percentage is the percentage of product lines which are unavailable for sale in each store at the beginning of each trading day.
2. The human resources department already records the total number of employee training days. Employee training covers the three main areas of health and safety training, training in handling customer complaints and training staff to understand the range of products available and how to display them attractively in the store.

3 Company information

Daldorn is a manufacturer of heavy steel items. It is funded by a venture capitalist organisation (VC). Following a period of poor performance, the VC has expressed concern that Daldorn's board members are focusing too much on their own interests, while neglecting to adequately measure and manage company performance in respect of other stakeholder groups.

The company has experienced severe cash flow difficulties due to financial losses made on the sale of several new products. These difficulties have been attributed to poor pricing decisions, which were the responsibility of the board and have resulted in many employees losing their jobs.

Key stakeholder groups

The VC has identified three key stakeholder groups at Daldorn:

The board

The VC is concerned that due to the past losses made on several new products, the board has become too cautious in their attitude towards potential new projects and, in particular, to the pricing of new products. Given the importance of the board to the success of Daldorn, the VC has recently implemented a new bonus scheme. This is an attempt by the VC to revise the board's appetite for risk and encourage them to take more risks, for example, in deciding on the price of new products. Board members will now receive a very large annual performance-related bonus for Daldorn's achievement of challenging targets set on the financial performance measure of return on capital employed (ROCE).

Employees

The manufacturing process at Daldorn does not require employees to have a high level of skill and so most of the manufacturing employees are relatively low skilled. Other employees in other departments have roles which can require specific skills and qualifications. There is a high level of unemployment in the region where Daldorn is based.

Government and regulators

Daldorn operates in a strict regulatory environment. Daldorn has a good record of compliance, but recently its own scientists have discovered high concentrations of a toxic pollutant, which is a waste product from its own manufacturing processes, in the soil near to its factory.

The VC has asked for your advice on whether Daldorn's existing measures shown in Appendix 1 adequately measure the company's performance in managing the concerns of each of these three key stakeholder groups. You may justify the use of alternative measures, but the VC wants only one measure for each stakeholder group and is not concerned about the potential conflict between measures at this stage. As part of this work, the VC expects you to briefly comment on the power and interest of the three stakeholder groups.

Pricing decision

Daldorn is about to launch a new product and needs to determine an appropriate price to charge. The variable cost of each product is uncertain and, hence, there are three possibilities for each demand level. The total contribution of the products at the three possible anticipated levels of demand are shown in Appendix 2.

Investment projects

Two new mutually exclusive manufacturing projects, which are totally unconnected to Daldorn, have become available for the VC to invest in. The VC has undertaken many similar investments before and is an almost entirely risk neutral investor.

Two important exogenous (external) variables affecting the net present value (NPV) of the new projects, A and B, are the worldwide demand for steel products and the level of tariffs applied to the import of a key raw material. The probabilities of these two variables are independent. The VC has estimated the probabilities of there being low, medium or high levels of these two variables in Appendix 3, together with an estimate of the expected NPV for project A for each level of demand and tariff. An analyst has already calculated that the overall expected value of project B is \$1,347 million.

Required:

- (a) Assess the performance measures shown in Appendix 1 in relation to the three key stakeholder groups as required by the VC. (9 marks)
- (b) Evaluate which price the board would choose for the new product based on the board's revised attitude to risk and briefly comment on the drawbacks of the decision rule used. (5 marks)
- (c) Advise the VC which of the two new investment projects it should undertake, including an evaluation of the appropriateness of the numerical technique used. (11 marks)

(25 marks)

Appendix 1

Stakeholder	Measure
Board	Return on capital employed
Employees	Training costs
Government/regulators	No measure specified

Appendix 2

Demand, selling price and variable cost for the new product

Demand*	Unit selling price \$'000	Unit variable cost \$'000	Unit contribution \$'000	Total contribution \$'000
1,200	75	37	38	45,600
1,200	75	40	35	42,000
1,200	75	50	25	30,000
950	95	37	58	55,100
950	95	40	55	52,250
950	95	50	45	42,750
500	140	37	103	51,500
500	140	40	100	50,000
500	140	50	90	45,000

* Total demand for the whole of the product's anticipated two-year life.

Appendix 3

Project A – Expected NPV (\$ million) for each possible demand level and tariff level combination

		Tariff level		
		High	Medium	Low
Demand level	Low	1,200	1,700	1,850
	Medium	1,000	1,500	1,600
	High	900	1,000	1,100

Project A – Joint probabilities for each possible demand level and tariff level combination

		Tariff level		
		High	Medium	Low
		0.20	0.50	0.30
Demand level	Low	0.20	0.04	0.10
	Medium	0.50	0.10	0.25
	High	0.30	0.06	0.15

Notes

- (1) The standard deviation of the outcomes for project A has been correctly calculated to be 103 and the standard deviation of the outcomes for project B has been correctly calculated to be 106.
- (2) An analyst has already calculated that the overall expected value of project B is \$1,347 million.

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

<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	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