Professional Level – Options Module

Advanced Performance Management

Thursday 8 December 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 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

ACCA

Section A – BOTH questions are compulsory and MUST be attempted

1   Mackerel Contracting (Mackerel) is a listed defence contractor working mainly for its domestic government in Zedland. At present, Mackerel is considering tendering for a contract to design and develop a new armoured personnel vehicle (APV) for the army to protect its soldiers during transport around a battlefield. The invitation to tender from the government specifies that the APV should take two years to develop and test, and be delivered for a full cost to Mackerel of no more than $70,000 per unit at current prices before Mackerel's profit element. Normally, government contracts are approximately priced on a cost plus basis with Mackerel aiming to make a 19% mark-up.

At the last briefing meeting, the institutional shareholders of Mackerel expressed concern about the volatility of the company's earnings (currently a $20·4m operating profit per annum) especially during the economic downturn which is affecting Zedland at present. They are also concerned by cuts in government expenditure resulting from this recession. The Zedland minister for procurement has declared 'In the current difficult economic conditions, we are preparing a wide ranging review of all defence contracts with a view to deciding on what is desirable within the overall priorities for Zedland and what is possible within our budget.' The government procurement manager has indicated that the government would be willing to commit to purchase 500 APVs within the price limit set but with the possibility of increasing this to 750 or 1,000 depending on defence commitments. In the invitation to tender document, the government has stated it will pay a fixed sum of $7·5m towards development and then a 19% mark-up on budgeted variable costs.

Mackerel's risk management committee (RMC) is considering how much to spend on design and development. It has three proposals from the engineering team: a basic design package (Type 1) and two other improved design packages (Type 2 and Type 3). The design packages will have different total fixed costs but are structured to give the same variable cost per unit. The basic design package will cost $7·5m to develop which will satisfy the contract specification. It is believed that the improved design packages will increase the chances of gaining a larger government order but it has been very difficult to ascertain the relevant probabilities of different order volumes. The RMC need a full appraisal of the situation using all suitable methods.

The risk manager has gathered information on the APV contract which is contained in appendix A. She has identified that a major uncertainty in pricing the vehicle is the price of steel, as each APV requires 9·4 tonnes of steel. However, she has been successful in negotiating a fixed price contract for all the steel that might be required at $1,214 per tonne. The risk manager has tried to estimate the effect of choosing different design packages but is unsure of how to proceed to evaluate the different options.

You are a consultant brought in to advise Mackerel on the new contract. The RMC need a report which outlines the external factors affecting the profitability of the project and how these factors can be built into the choice of the design budget which is ultimately set.

Appendix A

Budgeted cost for APV

Variable cost per unit

	$	
Steel	11,412	9·4 tonnes at contracted prices
Engine/transmission	9,500	
Electronics	8,450	
Other	4,810	
Labour	13,800	

Design and development (fixed total)	$
Package	
Type 1	7,500,000
Type 2	8,750,000
Type 3	10,000,000

Risk manager's assessment of likely government order:

Demand	Probability Type 1	Type 2	Type 3
500	85%	25%	20%
750	10%	50%	50%
1,000	5%	25%	30%

Required:

Write a report to the risk management committee to:

(i) Analyse the risks facing the management of Mackerel and discuss how the management team's attitude to risk might affect their response; (9 marks)

(ii) Evaluate the APV project using metrics and methods for decision-making under risk and uncertainty and assess the suitability of the different methods used; (19 marks)

(iii) Recommend an appropriate choice of method of assessing the project and, therefore, a course of action for the APV contract. (3 marks)

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

(4 marks)

(35 marks)

2　Cod Electrical Motors (Cod) manufactures electrical motors for some of the 24 different European domestic appliance manufacturers. Their motors are used in appliances such as washing machines and refrigerators. Cod has been in business for over 50 years and has obtained a reputation for producing reliable, low cost motors.

Cod has recently rewritten its mission statement, which now reads:

'Cod Electrical Motors is committed to providing competitively priced, high quality products, with service exceeding customer expectations. We will add value to our business relationships by investing in product development and highly trained personnel.'

The board have recognised that their existing key performance indicators (KPIs) do not capture the features of the corporate mission. They are worried that the staff see the mission statement as a public relations exercise rather than the communication of Cod's vision.

The monthly board papers contain a simple performance summary which is used as the key performance measurement system at that level.

Example of board papers for November 2011:

Cod Electrical Motors

Key performance indicators for November 2011

	This month	YTD	Comparative
Profit ($m)	2·1	25·6	1·9
Free cashflow ($m)	3·4	17·6	1·6
Return on capital employed (%)	12·4	11·7	11·8

Notes:

(a)　The year end is 31 December.
(b)　The comparative figure is for the same month in the previous year.
(c)　ROCE is an annualised figure.
(d)　YTD means year to date.

There are additional performance indicators not available to the board that line management use for a more detailed picture.

Additional performance information:

	Note 1	2011	2010
Activity			
No of orders		2,560	2,449
No of deliveries		1,588	1,660
Staff			
No of staff (FTE basis)	2	1,229	1,226
No of staff training days		2,286	1,762
No of vacant posts	3	11	17
Customers			
No of orders with a complaint	4		
late delivery		26	25
product quality		39	31
customer service		21	24
other		52	43
Preferential supplier status	5	14	12
Production			
New products			
begun in year to date		2	1
in development at month end		4	3
launched in year to date		1	1
Quality			
internal failure costs ($'000)		3,480	2,766
external failure costs ($'000)		872	693

Notes:

1 Figures are year to date with comparatives from the previous year quoted on the same basis.
2 FTE = Full-time equivalent staff numbers.
3 Post is considered vacant if unfilled for more than four months.
4 Complaints are logged and classified into the four categories given when received.
5 Number of customers where Cod holds preferred supplier status.

Required:

(a) Assess whether the current key performance indicators (KPIs) meet the expected features of a modern performance measurement system.   (7 marks)

(b) Explain how the performance pyramid (Lynch and Cross) can help Cod's board to reach its goal of a coherent set of performance measures.   (6 marks)

(c) Evaluate the current system using the performance pyramid and apply the performance pyramid to Cod in order to suggest additional KPIs and a set of operational performance measures for Cod.   (12 marks)

(25 marks)

Section B – TWO questions ONLY to be attempted

3 Bluefin School (Bluefin) is a school for 12 to 17-year-old pupils. It currently has 1,000 pupils attending drawn from its local area. The school is run by an executive group comprising the head of school and two deputy head teachers. This group reports to a board of governors who are part-time and selected from the local community and parents. The school is wholly funded by the government.

The school's ethos is 'to promote learning, citizenship and self-confidence among the pupils. This is developed from a consensus, led by the board of governors and the head of school and informed by the views of the pupils' parents.'

The school information systems are highly decentralised. Each department keeps its own records on a stand-alone PC using basic word processing and spreadsheet packages. The school's administrative department has a small network in its own offices with compatible applications and also a database and financial recording and reporting package for use in schools (provided by the government).

The school is broken down into 11 academic departments such as mathematics, science and history. Each department head must prepare information for reporting to the board by inputting and processing the data. They obtain some help from an administrator who visits each department to spend a few hours per week helping in the recording and preparation of the departmental information. The department heads have different approaches to reporting their performance, with some using average marks in the annual exams for each class and some using pass rates of the annual exams. Some department heads present graphs of their data while most use tables of figures.

The information is passed from each department to the school administration office on a memory stick (USB flash drive). The school administration office prints out the information for each department and adds it to a financial report creating a governors' pack of usually about 13 pages for the annual review board meeting. The financial report is a detailed income and expenditure statement for the period under review (usually a two page print-out from the reporting package). An example of one of the 11 departments' report is given in the Appendix.

The board of governors meets every quarter and reviews the governors' pack once a year. The board are concerned that the information that they are receiving is not meeting their needs and that there are a number of problems with the control and security of some of the data.

It has been suggested that the school should consider improving its information systems by installing a network across the school to link the departmental computers and the administration department. A single database would be created to store all the performance information. The computers would then be linked to the internet in order to facilitate data transfer to other schools in the region and to the government.

Appendix

Bluefin School

Mathematics department

Year 2010/2011		Average marks	
		Current yr	Previous yr
	Class	%	%
Year 1	A	63	59
	B	60	61
	C	51	55
	D	47	44
Year 2	A	61	70
	B	58	62
	C	49	47
	D	45	43
Year 3	A	67	67
	B	61	57
	C	50	50
	D	42	41
Year 4	A	62	58
	B	59	59
	C	50	54
	D	46	47
Year 5	A	57	58
	B	51	49
	C	47	48
Year 6		54	53

Notes:
Each year contains pupils of the same age.
Annual national exams are set in years 4, 5 and 6.
Each year group is divided into different classes in order to ensure that classes do not exceed 35 pupils.
(Not all pupils take every subject each year.)
Average marks are for the annual examinations.

Required:

(a) With reference to the current situation at Bluefin School, discuss the controls and security procedures that are necessary for management information. (9 marks)

(b) Using the limited information available, evaluate the usefulness of the pack that is provided to the board of governors. (6 marks)

(c) Evaluate the improvements suggested to the information systems at Bluefin. (5 marks)

(20 marks)

[P.T.O.

4 Albacore Chess Stores (Albacore) is a chain of 12 shops specialising in selling items associated with the game of chess: boards, pieces, clocks, software and books. Three years ago, the company was the subject of a venture capital buyout from a larger group. A new senior management team was put in place after the buyout. They have the aim of running the business in order to maximise profits.

The Chief Financial Officer (CFO), along with the other members of senior management, sets the annual budget and uses a standard costing approach with variance analysis in order to control individual shop performance. The head office handles all capital purchases and brand marketing. All inventory purchasing is done centrally and the shop opening times are set as standard across the company. As an illustration of senior management attitude, the CFO had set the budget for 2011 staff costs at $7 per hour for part-time staff and this was rigorously observed in the period.

Each shop is run by a manager who reports their financial results to head office. The shop managers recruit and manage the staffing of their shop. They have some autonomy in setting prices locally and have been given authority to vary prices by up to 10% from a master list produced by the CFO. They also have a local marketing budget agreed each year by the shop's manager and the marketing director as part of the annual appraisal process.

The shop managers have approached the Chairman of Albacore to complain about the way that they are managed and their remuneration. They feel that their efforts are unrecognised by senior management. One manager commented, 'I have had a successful year in hard economic circumstances. I have run a number of promotions in the shop that have been well received by the customers. However, the budgets that are set are impossible to achieve and as a result I have not been paid any bonus although I feel that I have done everything in my power to bring in good profits.'

The shop managers at Albacore are paid a basic salary of $27,000 with bonuses of up to 30% of basic salary dependent on two factors: performance above budget and the operational director's performance assessment. The budget for the next year is prepared by the CFO and presented at the shop manager's annual appraisal.

The Chairman has come to you to ask if you can consider the system of performance assessment for the shop managers and give an independent perspective on the reward systems at Albacore. She has provided the following illustrative information from the previous year for one shop:

Albacore Chess Stores

Tunny Branch Year to Sept 2011

	Budget $	Actual $	Variance $
Sales	266,000	237,100	−28,900
Cost of sales	106,400	94,840	11,560
Gross profit	159,600	142,260	−17,340
Marketing	12,000	11,500	500
Staff costs Manager	27,000	27,000	0
Part-time staff	38,000	34,000	4,000
Property costs	26,600	26,600	0
Shop profit	56,000	43,160	−12,840

Notes:
Property costs includes heating, lighting and rental.
Positive variances are favourable.

The manager of this shop commented at the appraisal meeting that she felt that the assessment was unfair since her failure to make budget was due to general economic conditions. The industry as a whole saw a 12% fall in revenues during the period and the budget for the period was set to be the same as the previous period. She was not paid a bonus for the period.

Required:

(a) **Assess the suitability of the branch information given as a means of assessing the shop manager's performance for this store, providing suitable additional calculations.** (8 marks)

(b) **Analyse the performance management style and evaluate the performance appraisal system at Albacore. Suggest suitable improvements to its reward system for the shop managers.** (12 marks)

(20 marks)

5 Tench Cars (Tench) is large national car manufacturing business. It is based in Essland, a country that has recently turned from state communism to democratic capitalism. The car industry had been heavily supported and controlled by the bureaucracy of the old regime. The government had stipulated production and employment targets for the business but had ignored profit as a performance measure. Tench is now run by a new generation of capitalist business people intent on rejuvenating the company's fortunes.

The company has a strong position within Essland, which has a population of 200 million and forms the majority of Tench's market. However, the company has also traditionally achieved a good market share in six neighbouring countries due to historic links and shared culture between them and Essland. All of these markets are experiencing growing car ownership as political and market reforms lead to greater wealth in a large proportion of the population. Additionally, the new government in Essland is deregulating markets and opening the country to imports of foreign vehicles.

Tench's management recognises that it needs to make fundamental changes to its production approach in order to combat increased competition from foreign manufacturers. Tench's cars are now being seen as ugly, pollutive and with poor safety features in comparison to the foreign competition. Management plans to address this by improving the quality of its cars through the use of quality management techniques. It plans to improve financial performance through the use of Kaizen costing and just-in-time purchasing and production. Tench's existing performance reporting system uses standard costing and budgetary variance analysis in order to monitor and control production activities.

The Chief Financial Officer (CFO) of Tench has commented that he is confused by the terminology associated with quality management and needs a clearer understanding of the different costs associated with quality management. The CFO also wants to know the impact of including quality costs and using the Kaizen costing approach on the traditional standard costing approach at Tench.

Required:

Write to the CFO to:

(a) Discuss the impact of collection and use of quality costs on the current costing systems at Tench.

(6 marks)

(b) Discuss and evaluate the impact of the Kaizen costing approach on the costing systems and employee management at Tench. (8 marks)

(c) Briefly evaluate the effect of moving to just-in-time purchasing and production, noting the impact on performance measures at Tench. (6 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

Discount rate (r)

Periods (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. $\dfrac{1 - (1 + r)^{-n}}{r}$

Where   r = discount rate
            n = number of periods

Discount rate (r)

Periods (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