



22065011

**BUSINESS AND MANAGEMENT
HIGHER LEVEL
PAPER 1**

Tuesday 16 May 2006 (afternoon)

2 hours

INSTRUCTIONS TO CANDIDATES

- Do not open this examination paper until instructed to do so.
- Read the case study carefully.
- Section A: answer all the questions.
- Section B: answer one question.

SECTION A

Answer **all** the questions in this section.

1. (a) Explain what is meant by
 - (i) quality circles (*line 68*)
 - (ii) continuous improvement (*line 68*). *[4 marks]*
- (b) Evaluate the contrasting approaches to quality control proposed by Catherine and Tony. *[10 marks]*

2. (a) (i) Examine possible sources of conflict among the staff at *SunGen Ltd*. *[8 marks]*
 - (ii) Assess the problems that may arise from the implementation of performance targets as part of Greg and Catherine’s proposed “appraisal system” (*line 118*). *[8 marks]*
- (b) Evaluate whether *SunGen Ltd* should change suppliers or build “closer relationships with local suppliers” (*line 65*). *[10 marks]*

3. Assess *SunGen Ltd’s* decision to target their products “at individual households” (*line 92*). *[8 marks]*

4. Contrast the marketing mix used by Electrical Solutions plc with that of *SunGen Ltd*. *[12 marks]*

SECTION B

Answer **one** question from this section.

5. The finance director, Alex Roderey, has prepared the draft accounts for the year ended 31 March 2006. Extracts from these are given below.

(\$ 000)	Year ended 31 March 2006	
	Electrical Solutions plc	<i>SunGen Ltd</i>
Fixed assets	5 050	1 275
Stock	192	72
Debtors	892	312
Creditors	1 522	177
Turnover	20 350	2 150
Purchases	15 875	1 895

As well as the year end accounts, management accounts are produced regularly (often monthly) for internal stakeholders. They are used to monitor progress against targets and budgets and as a basis for planning and decision making.

- (a) Using the information in Appendix 3 of the case study calculate the gross and net profit for Electrical Solutions plc for 2005. *[2 marks]*
- (b) Explain the importance of budgeting for *SunGen Ltd*. *[4 marks]*
- (c) Evaluate the change in the efficiency position of both Electrical Solutions plc and *SunGen Ltd* between the end of 2005 and the end of the first quarter 2006. *[8 marks]*
- (d) Analyse ways in which *SunGen Ltd* could improve their efficiency position. *[6 marks]*

6. Catherine, the managing director of *SunGen Ltd*, is proposing the development of a new environmentally sensitive production technique for the solar panels they produce. She feels this will help enhance the company’s environmental profile. This will require the building of a new production facility. There are a number of stages to the development of the production facility and these are set out in the table below together with the dependencies.

Task	Description	Dependency	Time taken (days)
A	Foundation and main structure building	First task	8
B	External finishing	Must follow A	10
C	Internal finishing	Must follow A, can start at same time as B	8
D	Installation of production equipment	Must follow C	16
E	Installation of environmental waste management system	Must follow B	12
F	Installation of production management systems	Must follow D	6
G	Installation of computer network	Must follow D and E	14
H	Installation of computer hardware and software	Must follow F	6
I	Test production run	Must follow G and H	12

- (a) Draw a network diagram to represent the building of the new production facility, showing clearly the earliest starting times, latest finishing times and critical path. [8 marks]
- (b) Analyse the benefits to *SunGen Ltd* of producing a Corporate Social Responsibility report. [6 marks]
- (c) Discuss the options available to *SunGen Ltd* to fund the proposed expansion of their “production facility” (line 138). [6 marks]
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**BUSINESS AND MANAGEMENT
CASE STUDY: SUNGEN LTD**

For use in May and November 2006

INSTRUCTIONS TO CANDIDATES

- Case study booklet required for Higher Level Paper 1 and Standard Level Paper 1 Business and Management examinations.

SUNGEN LTD

The case study is based on two companies Electrical Solutions plc and its subsidiary, *SunGen Ltd*.

Company profile

In 1985, Derek Gorman opened Electrical Solutions, a small retail outlet selling electrical equipment. As an ambitious entrepreneur Derek set himself the target to be a millionaire before he reached the age of 35. He was constantly looking for new business and market opportunities. There was an increasing international trend for electrical equipment, such as washing machines and televisions, to be sold in large out-of-town retail outlets to take advantage of economies of scale. Derek's market research highlighted that there were no such retail outlets in the suburbs of several large Australian cities. To take advantage of this business opportunity he developed a business plan and obtained a \$1.5 million bank loan (some of which was secured against his house) to open out of town electrical retailing outlets in the suburbs of Melbourne. Sales revenue far exceeded expectations and in 1992 he achieved his ambition and earned his first million dollars in salary and bonuses.

To develop the business further Derek converted Electrical Solutions into a private limited company and by 1995 it had opened 10 further stores in Melbourne, Canberra and Adelaide and had a turnover of over \$22 million. However, by 2000 turnover at *Electrical Solutions Ltd* slumped as large global conglomerates moved into Australia to take advantage of good trading conditions. These conglomerates were able to use their market and buying power to drive down prices making the market increasingly price competitive. *Electrical Solutions Ltd* was finding it increasingly difficult to match these price cuts.

Derek felt that being a private limited company was restricting further growth of the business. In 2001 the board of directors decided to float 65 % of the shares of *Electrical Solutions Ltd* on the Australian Stock Exchange. Derek and his family kept 30 % of the shares and the remaining 5 % was reserved for employees under an employee share ownership scheme. Derek became the chief executive officer of Electrical Solutions plc, a role he had fulfilled for the limited company since its start-up. In 2000, Derek's daughter Catherine joined the firm as director with responsibility for purchasing. Catherine had been to university in Sydney and then spent four years working for a large Japanese car company where she pioneered environmentally sensitive manufacturing techniques.

At a board meeting in 2003, the directors agreed that for the company to grow further, it needed to diversify into other areas. With the existing intense competition in the electrical equipment retail market, Electrical Solutions plc looked for alternative expansion opportunities. It commissioned the consultancy firm, Martrend, to conduct market research on its behalf and to investigate potential new markets. Martrend identified that consumers were increasingly concerned about both global warming and rising energy prices and were looking for new solutions to meet their energy requirements. This offered a significant market opportunity for companies manufacturing solar power equipment and so Electrical Solutions plc considered entering this market. Some of the board of directors had reservations about this change of direction, but Catherine's passionate belief in sustainable energy persuaded the majority of the board to support the idea.

With solar power technology still developing, this represented a very new and risky market, but the report from Martrend provided convincing evidence that the market was set to grow rapidly and that there was an opportunity to gain first mover advantage.

40 In February 2003, Electrical Solutions plc set up *SunGen Ltd* as a wholly owned subsidiary of Electrical Solutions plc. Start-up capital was partly provided through a \$1 million bank loan. Further capital was contributed by the parent company, using funds released from the sale of the worst performing out of town retail outlets.

45 Derek's daughter Catherine was appointed the managing director of *SunGen Ltd*, which is based in Melbourne along with Electrical Solutions plc. It manufactures and sells solar power equipment to generate electricity for households and small firms (see **Appendix 1** for product range). Customers can use this equipment to generate power for their own needs and they can sell any surplus electricity to the national electricity provider for use by other customers.

Production

50 The production director of *SunGen Ltd* is Tony McGregor, an old friend of Derek's. He worked for many years as a manager for one of the large electricity companies. Derek persuaded him to move with an offer of a generous financial package including shares and bonuses. Some staff resented this appointment.

55 *SunGen Ltd* manufactures the solar power equipment to customer specification. The equipment is assembled from components that *SunGen Ltd* buy from a range of suppliers, as soon as an order is received from a customer. Consequently, *SunGen Ltd* holds minimal levels of stock. However, some suppliers have proved unreliable and long delivery times have resulted in some delays in delivery of the equipment to customers, causing dissatisfaction.

60 Significant recent growth means that the assembly area is currently running at an average 98 % capacity. Significant overtime is often required to meet demand and some of the production staff are expressing their concerns about the unpredictable nature of the hours they are expected to work.

65 *SunGen Ltd* is also having problems with the quality of the components from one or two suppliers and in the worst case this resulted in an entire system being replaced for a customer. Tony has suggested to the board that *SunGen Ltd* changes suppliers, but many of the components are highly specialized and the only alternative suppliers are located in Asia. The board has asked Tony to look at the possibility of building closer relationships with local suppliers.

70 These supplier problems have led Tony to look at quality issues across all their operations. Catherine is a strong advocate of total quality management and is promoting the use of quality circles and continuous improvement. By contrast Tony, who has quite a traditional management style, feels that quality control issues are the responsibility of management. He wants the employment of additional managers, with specific responsibility for quality.

Tony and Catherine are considering the possibility of buying a computer-controlled production management system. Currently, all production information is duplicated in several systems, which makes coordination difficult, leading to delays in production. Catherine argues that a computer-controlled system would enable them to manage production more efficiently. She believes this will reduce unit cost. Tony is not convinced and argues that the costs of the system will outweigh its benefits.

Marketing

The market for solar power equipment is a niche market. The market is small, but is growing at approximately 20 % per year and *SunGen Ltd* estimate they have around 65 % of the market. There is currently only one other major firm, though their products differ from those of *SunGen Ltd* in several important respects. *SunGen Ltd's* marketing director is Ying Chau and she was appointed in 2004. Their current product range is given in **Appendix 1** with details of the products.

The initial marketing strategy targeted mainly business customers. The key market segment is firms who construct houses. *SunGen Ltd* target these customers by exhibiting at trade shows and through personal selling.

SunGen Ltd want to persuade the government to accelerate the growth of the solar power equipment market. The company has commissioned a public relations firm to influence the government to implement two main changes:

- modifications to planning regulations to require house builders to fit systems that use renewable and sustainable energy systems in new houses.
- subsidies to households who decide to fit renewable energy systems in existing houses.

In June 2005, the board of directors agreed to an expansion plan proposed jointly by Ying and Catherine to target their products at individual households. This move was partly based on the results of the market research conducted by Martrend in 2003. The results found that 45 % of those questioned would consider fitting some sort of renewable energy generation system. Ying was a little unsure about the value of these results and argued that they should be interpreted carefully and further market research commissioned. Catherine felt there was sufficient evidence from the research of a viable market and has asked Ying to design an appropriate marketing strategy. As the market is geographically dispersed, *SunGen Ltd* will require suitable distribution channels for their products which need to be professionally installed.

Human resource management

In 2004, Greg Robinson was transferred to *SunGen Ltd* from Electrical Solutions plc to manage the human resource department. His first priority was to recruit production staff. To speed up the process, he recruited a proportion of the staff internally from Electrical Solutions plc.

In 2005, Greg and Catherine decided to review the organizational structure. Greg agrees with Catherine that the company needs a flatter structure with fewer levels of hierarchy. Their aim is to ensure that the company is as flexible and responsive as possible, and able to cope with the

rapid levels of growth they anticipate. Tony is concerned that as a result of the flatter structure there will be problems with lines of communication and management control. He points out that important decisions may not reach all staff resulting in delays in production. Tony is supported by a number of the internally recruited staff, who argue that there is no clear leadership or vision. They feel that too often they are left to make decisions. Although they enjoy the extra responsibility they are unclear how their decisions fit with the company's strategic direction.

Along with the review, Greg and Catherine are considering changes to workers' contracts to make them more flexible. Production workers will be offered a certain number of hours each week according to the level of demand. A proportion of the workers will be placed on temporary contracts. The workforce is represented by a single trade union. It is threatening strike action if the proposed changes are adopted. Trade union representatives have met with Greg to try to resolve these issues.

Greg and Catherine believe that staff should be given incentives. They are proposing an additional training programme and appraisal system. Production staff will be required to attend a one-week residential training course, which is being organized for *SunGen Ltd* by an external training organization. At the end of the training programme the staff will negotiate performance targets with their line managers for the coming year. Then, at the end of the year, an appraisal system will be introduced to review these targets. High-performing staff will receive significant bonuses and other incentives.

Finance

The finance department of *SunGen Ltd* consists of two staff plus the finance director, Alex Roderey. It is responsible for the preparation of monthly management accounts for the board of directors and the year-end accounts. Payroll, customer invoicing and other day-to-day operations are centralized in the finance department of Electrical Solutions plc. They make an annual charge to *SunGen Ltd* for providing these financial services.

Alex is concerned about the financial situation of *SunGen Ltd*. Although the growth in sales is promising, the company is still making significant losses and remains very short of working capital. Electrical Solutions plc is currently funding *SunGen Ltd* from their cash reserves, but these reserves are running down. *SunGen Ltd's* forecasts suggest they will become profitable in 2007, but they will need a further cash injection in the near future if they are to avoid problems with meeting their obligations to staff and suppliers. The financial situation is the main item on the agenda of the next meeting of the board of directors and Derek and two other representatives from the board of Electrical Solutions plc have been invited to attend this meeting. Alex will also raise the issue of longer term funding at this meeting as he agrees with Catherine and Tony that they need to expand capacity by building a new production facility within the next 18 months if they are to avoid a significant production backlog.

Key financial figures are given in **Appendix 3**.

Future prospects

SunGen Ltd has made a positive start with strong sales growth and a good response to the product range from customers. Catherine is keen to make further use of their environmental profile and is currently developing a mission statement for the firm and a Corporate Social Responsibility report. This will consider issues relating to their products, staff, the environment, stakeholders and their accountability. The finance director, Alex, has raised concerns about the Australian housing market. Solar power equipment for new houses is a significant proportion of their business and therefore he is worried about reports from some commentators that house prices are set to fall. There is also uncertainty about the state of the economy in general. However, Catherine has dismissed these concerns as she feels that demand for their systems is based more on people's attitudes and environmental issues than on income levels. Forecasts for major Australian macroeconomic indicators (as at November 2005) are given in **Appendix 2**.

Appendix 1

Current SunGen Ltd product range

Product	Description	Target market
Solar roof tiles	These roof tiles are designed to replace existing roof tiles and generate a significant proportion of the power required to run a house. Replacing a whole roof can be expensive, though a proportion of the roof could be replaced.	Builders of new and existing houses
Metal solar roofs	These metal roofs are expensive and can only be fitted to new houses. Once fitted they will generate the majority of the power required for the house.	House builders
Free standing solar panels	These free standing panels are available in a range of sizes, cheap to buy and fit and can be fitted anywhere – for example, on a roof or in a garden. They offer a good introductory product for customers wanting to generate a small amount of their own power.	Individual households
Solar glass	This is a premium product fitted instead of conventional glass that generates power for the building.	Business users and builders of new buildings

Appendix 2

Australian economy – macro-economic forecasts (as at November 2005)

Indicator	2006	2007	2008
Inflation (%)	2.2	2.9	3.4
Economic growth (% change in GDP)	3.7	2.4	0.9

Appendix 3

Key financial information – Electrical Solutions Ltd and *SunGen Ltd*

Key ratios					
	Year ended 31 March 2003	Year ended 31 March 2004		Year ended 31 March 2005	
	Electrical Solutions plc	Electrical Solutions plc	<i>SunGen Ltd</i>	Electrical Solutions plc	<i>SunGen Ltd</i>
Profitability					
Gross profit margin (%)	28	24	– 6	22	– 8
Net profit margin (%)	9	8	– 12	8	– 14
ROCE (%)	23	22	– 6.3	20	– 16
Liquidity					
Current ratio	2.3	1.8	1.2	1.6	1.1
Acid test ratio	1.2	0.9	0.8	0.7	0.6
Efficiency					
Stock turnover (number of days)	91	102	33	105	28
Debtor days	15	14	46	14	49
Creditor days	34	35	41	38	39

Key balance sheet and profit and loss figures \$ 000					
	Year ended 31 March 2003	Year ended 31 March 2004		Year ended 31 March 2005	
	Electrical Solutions plc	Electrical Solutions plc	<i>SunGen Ltd</i>	Electrical Solutions plc	<i>SunGen Ltd</i>
Turnover (\$ 000)	17 500	18 200	700	19 400	1 800
Capital employed (\$000)	6 850	6 590	1 320	7 750	1 570
Fixed assets (\$000)	3 790	4 220	950	5 050	1 275
Loan capital (\$000)	2 400	3 200	1 000	3 450	1 250
Working capital (\$000)	3 060	2 370	370	2 700	295
Net profit before interest and tax \$000	1 575	1 450	(84)	1 550	(252)