



FINANCIAL MANAGEMENT, SYSTEMS AND TECHNIQUES

Certificate stage examination

5 December 2007

MARKING SCHEME

Question 1

Syllabus area A2; OLM Study Session 17

Produce a report for the Board of Trustees which covers the following points

The response should be in the form of a report to the Board of Trustees.

1 mark for use of an appropriate format and style of answer. This mark is to be taken from the marks allocated to part (a)

(a) A brief explanation of what EOQ can achieve and a critique of EOQ as an appropriate model to use in Greenergardens

The EOQ model aims to establish the optimum size of orders that should be placed in order to minimize order/holding costs. Once this has been calculated, further calculations can be made which establish how many orders will need to be placed over a period, the frequency and the cost of the inventory management process.

1 mark for explanation

The EOQ model makes certain assumptions. Answers should identify those assumptions that are not consistent with the circumstances relating to Greenergardens.

- There is a known demand for the item of inventory. This may very well be the case over a period of time. There is nothing in the scenario to suggest that there have been problems in forecasting the overall sales level and the overall demand for raw materials.
- Constant usage of inventory items over the period. This is more of a problem. There is a peaking of sales in spring and summer and this may be matched by additional production at these times, leading to an increase in demand for raw material.
- It is not known whether the inventory replenishment is instantaneous.

*1 mark for each relevant point subject to a maximum of 2 marks
To be relevant the point must make reference to Greenergardens
If an answer simply lists the assumptions and does not comment upon them only ½ mark should be awarded*

(4)

(b) A recalculation of the EOQ which shows clearly how the changes in the cost data would affect both the EOQ, the number of orders per year and the overall costs. Calculate the reorder level based upon the information provided above. What impact might the use of this have upon the EOQ method being used?

$$q = \sqrt{\frac{2 C D}{H}}$$

The original calculation gives

$$q = \sqrt{(2 \times 20 \times 10,000 \div 0.15)} = 1,633$$

$$\text{No. of orders} = 10,000 \div 1,633 = 6.12 \text{ (rounded to 6)}$$

$$\text{Order cost} = 6 \times 20 = 120$$

$$\text{Holding cost} = 1,633/2 \times 0.15 = 122.47$$

$$\text{Total cost} = \text{£}242.47$$

4 marks for calculation

Using the revised new figures

$$q = \sqrt{(2 \times 30 \times 10,000 \div 0.20)} = 1,732$$

$$\text{No. of orders} = 10,000 \div 1,732 = 5.77 \text{ (rounded to 6)}$$

$$\text{Order cost} = 6 \times 30 = 180$$

$$\text{Holding cost} = 1,732/2 \times 0.20 = 173.20$$

$$\text{Total cost} = \text{£}353.20$$

Or £373.20 if the buffer stock is included

4 marks for the calculation

NB. No of orders may be rounded to 7

There is no difference in the ordering strategy in that there will still be 6 orders placed (once every two months). The only change is to the overall cost which increases as a result of the ordering and holding costs going up. The change in costs has made no significant difference to the inventory position and the failure to update the figures used in calculating the EOQ is not a major cause of the problems.

$$\text{ROL (re-order level)} = 10,000 \div 52 + 100 = 292 \text{ units.}$$

This would impact upon the holding costs previously calculated as the average amount of stock being held would increase.

1

$$\text{Assuming no other changes this would become } (1732 \div 2 + 100) \times 0.20 = \text{£}193.20$$

1

2 marks for comments

(12)

(c) A response to the suggestion of using JIT which explains what it is, how it might be implemented and how it might assist Greenergardens

JIT involves more than an approach to inventory management, but this is not fully reflected in the OLM so a narrower view would be expected and accepted.

Points that can be made:

- JIT involves reversing the production process so that it becomes demand led
- Raw materials will not be purchased in advance of production needs
- Finished goods will not be produced in advance of sales
- The production process will be streamlined to eliminate defects/ breakdowns and to ensure a smooth flow of work, thus reducing work in progress
- The aim of all of this will be to achieve a stockless system (or a minimum level of stock)

1 mark per point subject to maximum of 2

To achieve this in Greenergardens there would need to be

- A change in the approach to production
- A new relationship with raw material suppliers which allowed for materials to be delivered as and when required
- Product would be manufactured only in response to sales
- Quality control would have to be strengthened and operations would probably need to be revised

½ mark per point subject to maximum of 1

If this could be achieved Greenergardens would benefit through

- Reduction in inventory costs (holding costs would reduce but there might be an increase in ordering costs)
- Improved operations
- Better quality control
- Overall improvements to efficiency

½ mark per point subject to maximum of 1

(4)

(20)

Question 2

Syllabus area E2; Study session 8

(a) Calculate the mean and standard deviation for each of the samples

Direct route

Mean = 18.58

Standard deviation (s) = 3.23

1 mark for mean, 2 marks for standard deviation

Ring road

Mean = 17.25

Standard deviation = 2.30

1 mark for mean, 2 marks for standard deviation

(6)

(b) Estimate the population mean for the direct route at the 95% level of confidence

This is a small sample (< 25) therefore t distribution must be used

1

Use t distribution to establish confidence limits

Degrees of freedom ($v = n - 1$) = 11

1

t value for 95% confidence limit at 11 degrees of freedom is 2.201

1

Standard error (use s) = $3.23/\sqrt{12} = 0.9324$

1

Confidence limits are $18.58 \pm (2.201 \times 0.9324) = 16.53, 20.63$

2

This means that we can be 95% certain that the population mean for the direct route will lie between 16.53 and 20.63 minutes

1

(7)

(c) Test the hypothesis at the 5% level that the ring road has a significantly different journey time to the direct route

This will involve testing the difference between two means and will involve a two tail test as the hypothesis is that the ring road journey time is different to the direct route.

Pooled variance is given by:

$$S^2 = [(n_1 - 1)S_1^2 + (n_2 - 1)S_2^2] \div (n_1 + n_2 - 2)$$

1

$$S^2 = [(11 \times 10.43) + (11 \times 5.29)] \div 22 = \underline{7.86}$$

1

$$V = n_1 + n_2 - 2 = \underline{22}$$

1

Hypothesis

$$H_0 : \mu_1 - \mu_2 = 0$$

$H_1 : \mu_1 - \mu_2 \neq 0$ 1

Critical value at 5% significance level for a two tail test with 22 degrees of freedom is

$t = \underline{2.074}$ 1

Test statistic $= [(\bar{x}_1 - \bar{x}_2) - (\mu_1 - \mu_2)] \div [\sqrt{(S^2/n_1 + S^2/n_2)}$
 $= (18.58 - 17.25) \div [\sqrt{(7.86/12 + 7.86/12)}$
 $= 1.33 \div 1.14 = \underline{1.17}$ 1

The test statistic lies within the critical value. Therefore there is no significant difference between the two journey times. 1

Other methods of answering this question will be considered and marks may be awarded.

(7)

(20)

Question 3

Syllabus area D1; Study session 11

(a) Identify and describe the key characteristics of a project.

Project is defined in the OLM as:

“Project – unique process, consisting of a set of co-ordinated and controlled activities with start and finish dates, undertaken to achieve an objective conforming to specific requirements including constraints of time, cost and resources.”

Key points are:

- Projects should have definable goals and objectives
- It should have a start and end point
- It should have measurable outputs
- Projects may be carried out by a specifically selected team, and will probably have an external or internal sponsor
- The team may be multi-disciplinary
- The project should lead to change

1 mark per point up to a maximum of (5)

(b) Explain the criteria which can be used to judge whether a project is a success or a failure. What is meant by “soft success criteria”?

Criteria may include:

- Deadlines
- Budgets
- Resource constraints
- Performance and output standards and specifications

These are all hard criteria and measurable in quantitative terms. In addition there can be soft criteria which are more qualitative:

- Image
- Co-operation within the team
- Commitment
- Ethical behaviour
- Risk appreciation

½ mark for each relevant criterion up to a maximum of 4, plus 1 mark for explaining soft success criteria

(5)

(c) Project management techniques such as network analysis may be important but project managers need to develop a much wider range of skills. What skills do project managers need and how do project management techniques fit into the mix?

Project management skills fit into three main areas. These correspond to the activities identified in the project management direction finder model used in the OLM. They are:

1. Management of stakeholders – this will involve relating to project sponsors and end users/clients. Communication and negotiation skills are extremely important in this context.
2. Management of the project life cycle – this involves making project plans and monitoring and controlling those plans in order to achieve the project objectives. Project managers will need to be able to produce budgets and resource plans and to apply relevant skills in achieving them.
3. Management of performance is concerned with managing the project team (both visible and invisible). This will require skills of people management in order to get the best out of the team. The project manager will also need to manage their own performance, using skills of time management and reflection.

Project management techniques are concerned with planning and controlling projects and relate primarily to the achievement of point 2 above. These techniques include those approaches based upon network analysis and are largely concerned with achieving the hard criteria (deadlines, budgets etc) associated with the project. In contrast the other skills are much more people/political and organisational based. Techniques are important but only comprise part of the skills requirement. Project managers must be balanced in their approach.

1 mark for each main skills area plus up to 2 marks for discussion of the place of techniques within the skills mix

(5)

(15)

Question 4

Syllabus area E2; OLM Study Session 7

- (a) **Produce a probability table that estimates the surplus that would be made at each probability level and the expected surplus at each price level.**

Although the question asks for a probability table it is not looking for a specific format.

	Annual use	Annual revenue £	Annual surplus £	Probability %	Value £
60 pence	35% of 50 x 8 x 260 = 36,400	21,840	(2,160)	0.4	(864)
	40% of 50 x 8 x 260 = 41,600	24,960	960	0.3	288
	45% of 50 x 8 x 260 = 46,800	28,080	4,080	0.3	1,224
Expected Value					648

3

	Annual use	Annual revenue £	Annual surplus £	Probability %	Value £
80 pence	30% of 50 x 8 x 260 = 31,200	24,960	960	0.6	576
	35% of 50 x 8 x 260 = 36,400	29,120	5,120	0.2	1,024
	40% of 50 x 8 x 260 = 41,600	33,280	9,280	0.2	1,856
Expected Value					3,456

3

	Annual use	Annual revenue £	Annual surplus £	Probability %	Value £
£1.00	20% of 50 x 8 x 260 = 20,800	20,800	(3,200)	0.5	(1,600)
	30% of 50 x 8 x 260 = 31,200	31,200	7,200	0.3	2,160
	40% of 50 x 8 x 260 = 41,600	41,600	17,600	0.2	3,520
Expected Value					4,080

3

(9)

(b) Identify the probability, at each price level, that a deficit would arise.

At the 60 pence level there is a 40% chance of making a loss. At the 80 pence level there is no chance of making a loss. At the £1.00 level there is a 50% chance of making a loss.

1 mark for each price level up to a maximum of (3)

(c) Make a recommendation based upon the results of your analysis. What are the weaknesses of using expected values in this way?

Based upon expected values the recommendation would be a price of £1.00. But the risk of a loss is also greatest at this level. The least risky price would be 80p which gives no chance of making a loss. Candidates may also use reasoning based upon maximin etc as this is referred to in the OLM.

1 mark for simple recommendation based solely upon expected values plus 1 mark for an argument that considers other risks

Weaknesses of the expected values approach include:

- It assumes a risk neutral approach.
- It is an average figure.
- It is dependent upon assessment of probabilities.

½ mark per point up to a maximum of 1

(3)

(15)

Question 5

Syllabus area B1; OLM Study Session 1

- (a) Explain what information is, ensuring that you distinguish it clearly from data.**

Information is data that has been processed so that it is meaningful (or processed for a purpose, or interpreted and understood by the recipient). These are all definitions provided in the OLM either directly or in the textbook. There are three key points:

- There is a clear and logical approach to the production of information, the transformation.
- Information involves placing data in a meaningful context.
- Information is produced for a purpose, to serve an information need of some kind.

*The definition should contain or refer to at least two of these points for 2 marks to be awarded. A more general definition should be given 1 mark
Same reference should be made to data*

(2)

- (b) What are the main characteristics of information produced for operational and control purposes? Illustrate this using one example of management accounting control information. You may refer to the characteristics of decisions taken at this management level.**

The main characteristics of information for operational and control purposes are

- It tends to be produced frequently.
- The data source will normally be internal to the organization.
- There is a greater degree of certainty over this information than other types
- The scope of the information will be quite narrow and usually focused on the particular area being considered.
- It will often be very detailed information.
- The time period will be quite narrow.

It can be pointed out that these characteristics derive from the characteristics of the decisions taken at this level

- They are usually structured and based upon similar decisions taken in the past. Information follows a set format.
- The time scale of the decision making is short. Information is required quickly after the event.
- The impact on the organisation is small.
- Decisions are made frequently and as a matter of routine.

Up to 5 marks for valid characteristics. To be given full marks answers should be more than just a list of bullet points

A valid example of control information should be selected. The obvious areas would be budgetary control, inventory control, cash etc. Relevant characteristics should be applied to the chosen example.

1 mark for choosing an appropriate example, plus 1 mark for correctly applying at least two of the characteristics

(7)

- (c) Identify one example of management accounting information which is produced for other than operational and control purposes. Explain why it is produced and how it differs in characteristics from operational and control information.**

Candidates will need to identify an appropriate example of management accounting information. This could be an investment appraisal or a budget, but it must be information which relates to planning or tactical/strategic decision making. The example should be explained in terms of why it is produced.

1 mark for an appropriate example, plus 1 mark for explaining why it is produced, up to a maximum of 2

The information characteristics should then be compared. The comparisons may cover such areas as frequency of production, source of information, certainty, scope and level of detail. Reference may also be made to the type of decision being informed, ie whether it is structured, the time scale, the impact upon the organisation and the frequency of decision making.

1 mark for each valid point up to a maximum of 4

(6)

(15)

Question 6

Syllabus area A3; OLM Study Session 18

(a) Why do organisations need to manage cash?

The main reasons for managing cash are

- to ensure that the organisation has sufficient cash to meet its short term operational requirements
- to be satisfied that the arrangements in place allow cash transactions to be dealt with efficiently and effectively
- to establish the need for long term capital requirements and ensure that cash resources will be available
- to identify any cash surplus or deficit in the short or long term and make plans to deal with it in the most efficient and effective way
- identify and manage within the organisation those activities which influence the cash position

*1 mark per point up to a maximum of (4)
Other points may be considered*

(b) What is the cash pool? Define the terms payments float and receipts float and identify the main factors which will impact upon float forecasts.

The cash pool is the cash balances of the organisation (normally the net balances on the organisation's bank account(s)) adjusted for the payments float and receipts float.

The payments float consists of all those payments made by the organisation which have not yet been debited to the organisation's bank account. The receipts float is made up of all those receipts which have not been credited, or not been cleared, into the organisation's bank account.

1 mark for definition of cash pool, plus ½ mark for definitions of payments float and receipts float, up to a maximum of 2

The main factors which would impact upon float forecasts are:

- Transmission delay – the time taken for a transaction to travel from one organisation to another
- Lodgement delay – the time taken from receipt to payment into bank
- Clearance delay – the time taken by the bank to clear the transaction into the organisation's bank account

1 mark for each of the above properly explained, up to a maximum of 3

(5)

- (c) Identify four common methods whereby payments may be made to your organisation. What factors can you use to make a judgment on the effectiveness of these methods? Explain the factors in relation to one of the methods you have identified.**

Payments can be made to an organisation in various ways. The most common are:

- Cash
- Cheque
- Direct debits and credits
- BACS
- CHAPS
- Credit cards

½ mark for each correct method up to a maximum of 2

Factors which can be used include:

- Security
- Costs
- Convenience
- Certainty
- Delay

Each factor must be related to one of the methods identified at the beginning of the answer.

1 mark for each factor up to a maximum of 4. If factors are not related to a payment method then only ½ marks should be awarded

(6)

(15)

Question 7

Syllabus areas B3; OLM Study Session 2

- (a) Explain what an off-the-shelf solution is in relation to this scenario and outline the main advantages and disadvantages of taking this approach**

An off-the-shelf system consists of pre-written software which can be applied generically, ie it will offer a broad functionality that can be used by a wide range of organisations. In this case SOPHIA is available and would meet the needs of the Robinsons, but it would not be unique to them. It is likely that in this scenario the in house team would be employed to tailor the SOPHIA system to the more specific requirements of the Robinsons, but this will depend upon the flexibility available within the package. It is important to go through a full and proper systems development process.

2 marks for explanation of off-the shelf approach linked to the scenario

The main advantages of using off-the-shelf software are:

- Can be made available very quickly
- Could be relatively cheap to use
- Likely to be of high quality with very few bugs

On the other hand the disadvantages would be:

- May not fit the business' needs exactly
- Would be unlikely to give a lasting competitive advantage as it is easily replicated by competitors

1 mark per point up to a maximum of 4 (must include advantages and disadvantages)

(6)

- (b) What would be the main stages involved in using prototyping to develop the system required above?**

A prototype is a preliminary version of part or whole of a system being developed which can be given to end users for review and testing. The first stage is the development of a requirements specification which would lead into the systems design stage. Following this an initial version of the system would be produced. In this scenario this would be done by the in house team as they have already discussed the possibility of them doing this. This prototype would then be given to end users for review and testing. The feedback from end users would be used to revise the prototype and an improved version would be produced. Several iterations might then occur until agreement is reached and a final version of the system is built.

1 mark for each stage up to a maximum of (4)

- (c) Identify the main factors that should be taken into account in determining the most appropriate approach to systems acquisition for the Robinson business.**

The main factors to be taken into account would be:

- Delivery time
- Costs
- Technical quality
- Relevance to business requirements
- Ability of technical staff to cope
- Complexity of the system
- Uniqueness of area and potential for competitive advantage
- Need to link with existing systems.

These factors should be discussed in relation to the scenario outlined in the question.

*1 mark per point up to a maximum of (5)
If the scenario is ignored only half marks are to be awarded*

(15)