FINANCIAL MANAGEMENT, SYSTEMS AND TECHNIQUES

Certificate stage

7 June 2006

MARKING SCHEME

AT THE HEART OF YOUR CAREER

Question 1

Syllabus areas A1 and A5; OLM Study Sessions 16 and 20.

Prepare a report for the Finance Director on the current position with recommendations for action to be taken. Your analysis should concentrate upon the position as indicated by a calculation of relevant liquidity and working capital ratios, the overall working capital cycle and the capital gearing ratio.

Answers must be prepared in an appropriate report format, addressed to the Finance Director.

1 mark for presentation and format

The report should calculate relevant ratios, comment upon them and relate them to the other information given in the scenario. The report should then conclude and recommend action to be taken.

Liquidity ratios

- Current ratio
  Current assets: current liabilities = 30: 20 = 1.5 :1 (2004 = 1.6 : 1)

- Quick ratio
  (Current assets – inventory): current liabilities = 25 : 20 = 1.25 :1 (2004 = 1 : 1.33)

Note: overdraft could be netted against current assets.

Working capital ratios

- Inventory conversion period
  Average inventory ÷ cost of goods sold per day = (5 + 5)/2 ÷ 35/365 = 52 days (52)

- Debtor conversion period
  Average value of debtors ÷ daily average sales = (25 + 15)/2 ÷ 55/365 = 133 days (166)

- Creditor conversion period
  Average trade creditors ÷ cost of goods sold per day = (18 + 15)/2 ÷ 35/365 = 172 days (187)

  (Calculations based on year end figures will be accepted – these are shown above in brackets. Answers based upon cost of goods sold being stock minus purchases would also be acceptable.)

Working capital cycle

- Operating cycle
  Inventory conversion period + debtor conversion period = 52 + 133 = 185 days (218)

- Cash conversion cycle
  Operating cycle – creditor conversion period = 185 – 172 = 13 days (31)

Gearing

- Prior charge capital ÷ total capital = (5 + 25) ÷ (5 + 25 + 50 +10) = 33%
  (2004 gearing was 23.5%).

1 mark for each correct calculation but subject to a maximum of 7

Comments on ratio analysis

Liquidity

The position shown by the ratios seems quite healthy on the face of it. The current ratio is satisfactory at 1.5 : 1. The suggested figure (in the OLM) is 2 : 1. The quick assets ratio is more of a concern as this is also less than the ideal, being 0.8 : 1 as compared with 1 : 1. This has deteriorated from the previous year and probably a more significant indicator of the liquidity position.

Working capital

The ratios show a high level of stock turnover which can be seen as a good thing but which also indicates a high level of dependency on suppliers. The problem here is that the debtors and creditors periods are both extremely high which would indicate an aggressive approach to generating sales and also a possible problem with creditors in the future.

Gearing

The gearing ratio has increased significantly from 2004 to 2005 but is not yet at a level which could be described as high. The trend is towards increasing the reliance upon prior charge capital through the issue of debentures and taking out a bank loan.

2 marks for comments within each of the three main areas. Marks to be awarded for relevant points subject to an overall maximum of 6

Comments on current position

The current position as revealed by the ratio analysis must be viewed in relation to other developments known to the company. Turnover has increased significantly over a relatively short period. This expansion has only been achieved through an increased use of prior charge capital whilst equity has actually diminished. The use of trade creditors to finance expansion is also clear from the ratios.

The expansion carries a high level of risk and this is exacerbated by the possible downturn in the market which is anticipated. New entrants into the market have obviously created highly competitive conditions and this is probably why Blackbored have taken such a lax approach to debt collection. It may be difficult to reverse this without having an adverse effect on their competitiveness.

1 mark per point subject to a maximum of 3

Conclusions and recommendations

The company is not in a good position to deal with adverse market changes. Liquidity is decreasing and there is a dependency on creditors and the bank for financing. The current market expansion may be built upon shaky foundations.

The key to solving this problem would be the generation of more cash. This can come from existing debtors and from new sales. It is clear that new sales must be subject to tighter credit conditions but this has to be done in such a way that competitiveness is not affected. The company should concentrate upon selling to good customers rather than expanding haphazardly.

The company could also raise cash through taking out a new loan or by issuing more shares but would need to consider how this would impact on gearing.

If cash can be generated the priority should then be to improve the position with creditors and with the bank. This will take time and the company must be prepared to communicate with key stakeholders.

1 mark per point subject to a maximum of 3

The marking scheme is indicative and may need to be interpreted flexibly to allow for different approaches. The scenario offers a lot of opportunity for comment and for quite creative ideas for recommended action.

(20)

Question 2

Syllabus areas E1 and E2; OLM Study Sessions 6, 7 and 8.

(a) Group the data using £50 intervals and calculate the mean and standard deviation of the sample.

	Mid point (x)	Frequency (f)	fx	$(x - \bar{x})$	$(x - \bar{x})^2$	$f(x - \bar{x})^2$
201-250	225	2	450	-180	32400	64800
251-300	275	2	550	-130	16900	33800
301-350	325	5	1625	-80	6400	32000
351-400	375	15	5625	-30	900	13500
401-450	425	15	6375	20	400	6000
451-500	475	6	2850	70	4900	29400
501-550	525	3	1575	120	14400	43200
551-600	575	1	575	170	28900	28900
601-650	625	1	625	220	48400	48400
		50	20250			300000

$$\bar{x} = \frac{\sum fx}{\sum f}$$ = 20250 ÷ 50 = 405 (404.5)

$$s = \sqrt{\frac{\sum f(x-\bar{x})^2}{\sum f - 1}}$$ = √ (300000 ÷ 49) = 78.25 (75.65)

n.b. mid point figures can be determined differently. If they have been based upon 225.5 etc the mean and standard deviation would vary. Alternative figures are shown in brackets above.

Spreadsheet 3 marks; calculation of the mean 1 mark; calculation of standard deviation 2 marks
(6)

(b) Estimate the population mean at the 95% level of confidence.

Standard error

$$\sigma_{\bar{x}} = \frac{\sigma}{\sqrt{n}}$$ use S

Se = 78.25 ÷ √50 = 78.25 ÷ 7.07 = 11.07

σ = 405 ± (1.96 x 11.07) = 405 ± 21.7
Confidence limits 383.3 to 426.7

2 marks for standard error; 2 marks for confidence limits
(4)

(c) Based upon real values of rents how confident (at the 95% level) can we be that there is a difference between the results of the two surveys?

Use index to update the 2000 survey figures.

Mean is £360 = 360 x 124/111 = 402.2
Standard deviation is £60 = 60 x 124/111 = 67

1 mark for each figure

Difference between two means.

$\sigma_{(\bar{x}_1-\bar{x}_2)} = \sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}}$ again use S.

$(405 - 402.2) \pm 1.96 \sqrt{(78.25^2/50 + 67^2/50)} = 2.8 \pm 1.96 \times 14.56 = 2.8 \pm 28.54$

Confidence limits of difference between the two means is –25.74 to 31.35.

As this range includes zero (ie no difference) it is within the 95% confidence limit that there is no difference between the means of the two populations from which the samples have been drawn.

Answers which set up a hypothesis test to test the difference between two means are acceptable. This gives a z value of 0.19 which is less than 1.96 and means that the hypothesis that there is no difference can not be rejected.

Standard error 2 marks; confidence limits 1 mark; explanation 1 mark
(6)

(d) What size of sample should be used to estimate the population mean to within £20 with 95% confidence? (Assuming the standard deviation of the population is equivalent to your calculated figure for 2005?) Is the sample size satisfactory?

$n = [(1.96 \times 78.25)/20]^2 = 58.81$ *2*

Whether the sample size is satisfactory or not depends upon the degree of accuracy required. Accuracy will increase the larger the sample size but a point is reached where the increase in accuracy begins to diminish in relation to the increase in sample size. Sampling will often be a trade off between the cost/practicability of a large sample and what is acceptable in terms of accuracy. In this case the sample size is fairly close to providing the required level.

2 marks for comments upon the sample size
(4)

(20)

Question 3

Syllabus areas E2; OLM Study Sessions 7 and 8

(a) What is the difference between discrete and continuous distributions? Give an example of each.

A discrete distribution is one in which the variable under considerations may take only specific or discrete values (integers). In a continuous distribution variables may take any value within a given range. An example of a discrete distribution is the binominal distribution whilst the normal distribution is continuous.

1 mark for distinction and ½ mark for each example (to include other relevant distributions) *(2)*

(b) Calculate the probability of a patient taken at random seeing a doctor.

(i) For more than 16 minutes.
(ii) For less than 18 minutes.
(iii) For less than 13 minutes.
(iv) Between 11 and 17 minutes.

More than 16 minutes.
Z = (16 – 15) ÷ 3 = 0.33 gives 0.3707 = 37.07% *1*

Less than 18 minutes.
Z = (18 – 15) ÷ 3 = 1.00 gives 0.1587 = 15.87% more than

Therefore 84.13% less than. *1*

Less than 13 minutes
Z = (13 – 15) ÷ 3 = -0.67 gives 0.2514 = 25.14% *1*

Between 11 and 17 minutes
Z = (17 – 15) ÷ 3 = 0.67 gives 0.2514 = 25.14%
Z = (11 – 15) ÷ 3 = 1.33 gives 0.0918 = 9.18%
25.14 + 9.18 = 34.32
Deduct from 100% to calculate remainder = 65.68% *1*
(4)

(c) Using a chi square test assess the assumption that age is a determinant of the length of consultation time.

Ho: there is no association between age and consultation times.
H1: there is an association between age and consultation times. *1*

Significance level is 5%

Degrees of freedom are (4 – 1) x (3 - 1) = 6
At 5% this gives a critical value of 12.59 *2*

The actual consultation times according to the survey are:

Age group	0-15 years	16-65 years	66 and over	Total
<12 minutes	15	50	15	80
12 to 14 minutes	20	70	15	105
15 to 17 minutes	20	70	25	115
>18 minutes	25	50	25	100
Total	80	240	80	400

If there were no relationship the expected values would be:

Age group	0-15 years	16-65 years	66 and over	Total
<12 minutes	16	48	16	80
12 to 14 minutes	21	63	21	105
15 to 17 minutes	23	69	23	115
>18 minutes	20	60	20	100
Total	80	240	80	400

2

The chi square value is calculated as follows:

O (actual)	E (expected)	(O – E)	$(O - E)^2$	$(O - E)^2/E$
15	16	-1	1	0.0625
20	21	-1	1	0.0476
20	23	-3	9	0.3913
25	20	5	25	1.25
50	48	2	4	0.0833
70	63	7	49	0.7778
70	69	1	1	0.0145
50	60	-10	100	1.6667
15	16	-1	1	0.0625
15	21	-6	36	1.7143
25	23	2	4	0.1739
25	20	5	25	1.25
				7.4944

3

As 7.49 is less than 12.59 the null hypothesis cannot be rejected. The null hypothesis is accepted and the conclusion is that there is no relationship between age and length of consultation time. *1*

(9)

(15)

Question 4

Syllabus area F2; OLM Study Session 14.

(a) Explain what each of the options entails.

Risk reduction involves taking action to minimise the likelihood of a risk occurring and/or the impact which this would have on the organisation. Risk can be transferred to another party through contract arrangements (hold harmless, indemnity clauses) or through the use of insurance. Self-insurance is a form of risk retention usually through the operation of an internal insurance fund.

1 mark for each explanation to a maximum of 3

(b) Choose one example from a public service organisation known to you, relating to each of the options. In each case explain fully the nature of the risk being addressed and discuss the effectiveness of the approach being taken.

Candidates should choose examples from public sector organisations and their choice will be determined by the organisation(s) which they use.

Risk reduction should normally involve taking action to reduce risk. This may involve investment designed to eliminate or reduce the occurrence or to minimise the impact of occurrence. Examples may involve investment in the security of buildings such as intruder alarms, smoke detectors etc. Other examples may involve control systems designed to reduce the possibility of fraud and error.

Risk transfer may involve insurance in all its forms or may relate to contractual arrangements with third parties. Candidates may refer to PFI schemes as being a method for the transfer of risk to a third party.

Candidates may not have direct experience of self-insurance and allowance will be made for this. They should be aware of the potential for self-insurance and the main ways in which this can be achieved, as well as the arguments surrounding it. Examples given in the OLM include local funds for negligence claims in the NHS and regional loss claims pool for a local authority.

Answers should clearly indicate the nature of the risk being addressed and there should be some discussion of the effectiveness of the approach. This should take into account the organisational and financial implications and the problems of developing a risk management culture within public sector organisations.

1 mark for each appropriate example plus 2 marks for discussion for each of the options to a maximum of 9

(c) In what ways might the approach taken to risk management in the public sector differ from that taken in the private sector?

Public sector organisations are more likely to be risk averse. They are charged with the proper use of public funds and assets and, unlike the private sector, the motivation is service provision and not profit generation. One result of this is that public sector organisations do not always have a choice of which activities to pursue or of how or where to pursue them. They may be required to provide high-risk services to fulfil their statutory obligations. Public sector organisations, however, are often large and may be able to spread risk as a result of this.

This section will allow candidates the opportunity to think about the public sector and risk. Other valid points may be made.

1 marks for each valid point subject to a maximum of 3

(15)

Question 5

Syllabus areas B1 and C1; OLM Study Sessions 1 and 15.

(a) Define each of the three levels of management and describe the main characteristics of information at each of the levels.

The three levels of management are:
- Strategic
- Tactical
- Operational and control

The strategic level is concerned with the long-term objectives and position of the organisation. The tactical level involves planning to achieve the strategic objectives and operations are about working to achieve the outcomes of the plans and controlling activities accordingly.

The main characteristics may be categorised in different ways. The most obvious would be those shown at either page 18 or page 886 of the OLM. The first of these approaches involves using the three dimensions of time, content and form, which are then subdivided eg time is subdivided into timeliness, currency, frequency, and time period. The other approach involves the identification of information characteristics including:

- Time period
- Frequency
- Source
- Certainty
- Scope
- Detail

Each characteristic can be related to each of the management levels eg detail – strategic information is more aggregated/summarised whereas at the tactical and organisational levels more detail is required.

1 mark for identification and brief definition of each of the levels plus 1 mark for brief description of information characteristics
(6)

(b) Choose an example of financial management information for each of the levels and explain how the above characteristics would apply.

Candidates must choose an appropriate example of financial information for each of the three levels and then apply the characteristics identified above. Answers will depend upon the information chosen eg:
- Strategic information – financial reporting on new developments and policy changes, investment appraisal.
- Tactical information – revenue budgets, performance plans.
- Operations and control information – budgetary control statements, costing information.

1 mark for choosing an appropriate example for each management level (max 3 marks) plus a total of 2 marks for applying the characteristics
(5)

(c) What are the main features of good quality financial management information? How can accountants be sure that the needs of information users are being met?

The main features are:

- Relevance
- Suitability to user
- Affordability
- Timeliness
- Focus on business objectives.

Accountants must first identify who the users are and how the information is to be used. They should make sure that the information is appropriate to that use, in particular that it is relevant, suitable, timely and focused on business needs. There should be a two-way communication between accountants and users aimed at ensuring this.

1 mark for each feature subject to a maximum of 2 marks, plus up to 2 marks for discussion of meeting needs of information users
(4)

(15)

Question 6

Syllabus area B4; OLM Study Session 3.

(a) An introduction outlining the nature of computer output in an organisational context.

Answers should be in the form of a briefing note addressed to the working group. The first section of the briefing should deal with the general nature of computer output.

Output devices display the results of computer processing.

- This may be temporary eg a visual display or permanent eg printer output.
- Some output may be input into another process eg photographs, sounds and video sequences.
- Organisations are likely to require a range of different forms of output.
- A computer based information system will rarely make use of only one device.

1 mark for format/presentation;
1 mark for each relevant point subject to a maximum of 2
Other relevant points should be rewarded
(3)

(b) Identification of the main types of output hardware with an indication of the factors which should be considered in choosing between them.

The main types of output devices are:

- Visual display unit or monitor
- Sound output including speakers, sound cards
- MIDI devices
- Microfilm (COM)
- Printers.

½ mark per point up to a maximum of 2. Other devices are permissible and some of the above categories may be subdivided but not to the extent that all the marks are awarded eg for naming four types of printers

There are a number of factors which can be taken into account:

- Appropriateness – the device should be appropriate to the type of information and the use to which it is to put.
- Permanence – it may be necessary to maintain a permanent record of output.
- Response time – some activities may require immediate feedback in which case response time becomes important.
- Speed – this can be of critical importance and may determine the overall speed of the process. Volume of output may also be a factor in these circumstances.
- Cost – this will relate to the cost of purchasing the device and running costs.

1 mark per point subject to a maximum of 4
(6)

(c) A description of the three main types of printer that the organisation might use and the main criteria that could be used in selecting which would be most appropriate.

The three main types of printer are:

- Laser printers – used to charge sections of a rotating drum which is then used to print using toner powder achieving a combination of speed and high print quality.
- Inkjet printers – uses a print-head containing 50 or more small nozzles that squirt ink onto paper by varying electrostatic charges produced by the paper.
- Dot-matrix printers – a character is transferred to the paper by striking pins against an ink ribbon.

1 mark for each type with a description to a maximum of 3

The main criteria in choosing printers would be:

- Costs – this would include the cost of acquisition (purchase, lease or contract hire) and also the printing costs (per page) which might be contained within the contract price and would include consumables as well as servicing and maintenance costs.
- Print quality – this may be described in terms of dpi (dots per inch) and will depend upon what form of output is required, the expectations of recipients and whether graphics, photos etc will be part of the output.
- Paper handling – this relates to the ability to output onto a range of different types of paper eg envelopes, card OHPs etc.
- Colour printing – this is a further quality issue which might be considered separately.
- Volume – this must relate to workload requirements and will also impact upon costs.
- Speed – this can be a key issue with regard to the management of workload and would normally be measured in pages per minute.

1 mark for each criterion up to a maximum of 3
(6)

(15)

Question 7

Syllabus areas A3 and E3; OLM Study Sessions 9 and 18.

(a) Calculate the value of the annual interest which could be saved if the banking system is changed and compare this with the additional cost that would be incurred. Consider any relevant non-financial considerations and make an appropriate recommendation.

Calculation of interest savings.

The total receipts are £42m split between the three activities:

- New car sales - £16.8m
- Second hand sales - £16.8m
- Servicing - £8.4m

New car sales are banked on day of receipt. The current position is:

	Sat	Sun	Mon	Tues	Wed	Thu	Fri
Takings	2.8		2.8	2.8	2.8	2.8	2.8
Bankings			5.6	2.8	2.8	2.8	2.8

This position would not change as a result of the proposal.

Second hand sales are banked once a week on Mondays. The proposal is that they would be banked daily. The current and proposed positions are:

	Sat	Sun	Mon	Tues	Wed	Thu	Fri
Takings	2.8		2.8	2.8	2.8	2.8	2.8
Bankings			16.8				
Proposed			5.6	2.8	2.8	2.8	2.8

Tuesday's takings will now be banked six days earlier (Wednesday will be five etc.)
The total days saved will be 6 + 5 + 4 + 3 = 18
The interest saving would be 18/365 x 7.5% x £2.8m = £10,356 *2*

Servicing and parts receipts are banked twice a week on Tuesdays and Fridays. The proposal is that they would be banked daily. The current and proposed positions are:

	Sat	Sun	Mon	Tues	Wed	Thu	Fri
Takings	1.4		1.4	1.4	1.4	1.4	1.4
Bankings				4.2			4.2
Proposed			2.8	1.4	1.4	1.4	1.4

Saturday's, Monday's and Thursday's' takings will now be banked one day earlier. Wednesday's will be two days earlier. The total days saved will be 1 + 1 + 1 + 2 = 5
The interest saving would be 5/365 x 7.5% x £1.4m = £1,438 *2*

The total interest saving is £10,356 + £1,438 = £11,794 *1*

The additional costs of banking will only relate to the second hand franchises as the new sales franchises already bank daily. The second hand franchises were already banking on Monday, Tuesday and Friday. There will, therefore be two additional bankings per week per franchise.

The cost of this would be 2 x 52 x 6 x £6 = £3,744 *1*

The net savings would be £11,794 - £3,744 = £8,050 *1*

This is only one way in which the calculations can be carried out. Credit will be given for valid alternative approaches.

On financial grounds the recommendation would be to go ahead with the proposal. There are non-financial considerations which should be taken into account.

- Staff reaction to changes in routines, additional duties and new systems.
- Setting up new system.
- Reduction in cash/cheques held.
- Security implications of additional bankings.
- Need to encourage direct/electronic payments to reduce costs and workload further.

1 mark for recommendation plus ½ mark per point (subject to maximum of 1 mark)
(9)

(b) Explain what the cash receipts float is and how it relates to the cash pool. What are the main sources of delay which need to be taken into account in forecasting the float?

The cash receipts float is made up of receipts which have not yet been credited or have been credited but not yet cleared to the organisation's bank account. *1*

The receipts float must be deducted in calculating the overall cash pool available to the organisation. The calculation is given by:

Bank balance + payments float – receipts float. *2*

The main sources of delay are:

- Transmission delay – the time taken for a transaction to travel from one organisation to another.
- Lodgement delay – the time taken to pay the receipt into bank.
- Clearance delay – the time taken by the bank to clear the transaction.

1 mark for explanation of each source of delay to a maximum of 3
(6)

(15)