CIPFA

FINANCIAL MANAGEMENT, SYSTEMS AND TECHNIQUES

Certificate stage examination

6 June 2007

MARKING SCHEME

AT THE HEART OF YOUR CAREER

Question 1

Syllabus area B3; OLM Study Sessions 2 and 11

(a) Explain what bespoke development involves and how SSADM would be used.

Bespoke development is when an information system is developed from scratch by information systems professionals who may be employed by the organisation (in-house) or may be employed by a third party and contracted to the organisation.

SSADM is structured systems analysis and design methodology, which is a formal approach to the development of systems.

SSADM includes a number of steps that should take place when creating an information system. Students should explain in general terms what the method represents and outline the main steps in the process. Only a short explanation is required in order to gain the marks.

2 marks for explanation of bespoke development, 1 mark for explaining what SSADM means and up to 2 marks for setting out the main steps in the process

(5)

(b) Identify and explain the main criticisms that have been made of bespoke development.

The main criticisms of bespoke development are:

- It can be much more expensive than alternative approaches.
- It can take a long time.
- It may be inflexible.
- Information systems professionals may not fully appreciate the business requirements of the organisation.
- End users may have insufficient influence over the final product.

1 mark for each relevant criticism subject to a maximum of (4)

(c) Suggest two alternative approaches to the acquisition of new systems and explain what advantages they may have over the methods considered in sections (a) and (b). Give an example for each approach of a system for which it might be particularly appropriate.

The two most obvious alternative approaches are:
1. Off the shelf purchase
2. End user development

although it is possible to make use of hybrid approaches. Students who write about RAD or prototyping have missed the point as these would be alternative approaches to systems development. However, there may be some merit in their answers if they are linked in some way to the two alternatives listed above.

Off the shelf purchase involves the purchase of a standard pre written application which can be used by more than one organisation. This software is available commercially and may even be bought from high street retail outlets. The advantages of this are:
- Easily available and accessible.
- Can be cheap.
- Widely available for generic applications.
- Can often be used very quickly and with a small amount of technical expertise.
- End users can easily be involved in purchase and application.

End user development is the development of systems by non-IT professionals. The potential advantages of this are:
- Cost.
- Speed (this will be dependant on the experience of the end user).
- Accessibility and flexibility.
- End users getting the system they actually want.
- Encourages continuous improvement by users.

Examples of appropriate systems might be:
- Off the shelf purchase – payroll, accounting systems for small organisations, database systems, inventory etc.
- End user development – spreadsheet based systems for personal/ organisational use.

½ mark for each of the alternative approaches, ½ mark for each advantage subject to a maximum of 3 marks. 1 mark for each relevant example up to a maximum of 2

(6)

(d) Another alternative which could be considered is to enter into a partnership with the private sector, for example in the form of a PFI agreement. Explain how this might operate and what effects the arrangement would have upon the project management and systems development processes.

A PFI agreement would involve a private sector consortium designing, building, financing and operating an information system and leasing their services back to the public sector organisation. The public sector organisation would specify the outcomes required and the private sector would then design a system to meet those outcomes and deliver them. In theory this should take away the risk from the public sector and provide them with a value for money solution.

As far as project management is concerned this will place the emphasis upon different skills e.g. specifying outcomes and also on the management of delivery through the contracting process. There will also be a greater emphasis upon bringing together the consortium and on negotiation skills.

The systems development process will reflect this as only part of the SDLC would be required.

1 mark for explaining PFI in this context plus up to 2 marks for explanation of effects up to an overall maximum of (3)

(e) What is central government's current position on such arrangements and why has this position been taken?

The current position is that the government, through HM Treasury, has instructed public sector organisations not to enter into PFIs for IT projects. This has been in force since 2003. The reason for this is that there have been a series of badly performing projects which have affected the credibility of PFI in respect of this area. For example, the Passport Agency, Criminal Records Bureau, Magistrates' Courts etc. The bad performance has been reflected in failures to deliver on time, systems which were not fit for purpose and cost over-runs. Officially the Treasury says that IT projects do not deliver value for money.

2 marks for relevant discussion

(20)

Question 2

Syllabus areas E2 and E3 and ; OLM Study Sessions 8 and 10

(a) Test the hypothesis, at a 5% level of significance, that the normal production level is 20,000 kg of fish per quarter. Do your conclusions still apply at the 10% level? What advice can you give the Managing Director?

Calculate mean and standard deviation

Output (X)	X – $\bar{x}$	(X – $\bar{x}$)^2
19,500	-1,317	1,733,611
21,300	483	233,611
21,200	383	146,944
21,500	683	466,944
21,000	183	33,611
20,400	-417	173,611
124,900		2,788,332

1 mark for table

Mean of X = 124,900 / 6 = **20,817** *1*

Standard deviation (s)

$$s = \sqrt{\frac{\sum (x - \bar{x})^2}{n-1}}$$ = √(2,788,332/5) = **746.77** *2*

Small sample therefore use t distribution *1*

Hypothesis:
H_o: ц = 20,000
$H_{1:}$ ц ≠ 20,000 *1*

t statistic = ($\bar{x}$ - ц) / SE

SE = s / √n = 746.77 / √6 = **304.87** *1*

t = (20,817 – 20,000) / 304.87 = **2.68** *1*

Critical value at n –1 (= 5) degrees of freedom = **2.571** *1*

At the 5% significance level the null hypothesis may be rejected. *1*

At the 10% level the critical value is **2.015**. At this level the hypothesis may be rejected. *1*

The advice would be that the estimate of 20,000 is not acceptable and should not be used. *1*

If the t distribution is not used marks would be limited to mean, standard deviation, hypothesis and comments on results

(12)

(b) Establish whether there is a correlation between the level of output and the mean air temperature for each quarter. Explain the significance of your findings and why it is necessary to exercise caution in using correlation.

y (Output) 000kg	x (Temperature)	xy	y^2	x^2
19.5	16	312.0	380.25	256
21.3	20	426.0	453.69	400
21.2	20	424.0	449.44	400
21.5	20	430.0	462.25	400
21.0	19	399.0	441.00	361
20.4	18	367.2	416.16	324
124.9	113	2,358.2	2,602.79	2,141

3 marks for table

$$r = \frac{n\sum xy - \sum x \sum y}{\sqrt{\left(n\sum x^2 - \left(\sum x\right)^2\right)}\sqrt{\left(n\sum y^2 - \left(\sum y\right)^2\right)}}$$

$$r = \frac{(6 \times 2{,}358.2) - (113 \times 124.9)}{\sqrt{(6 \times 2{,}141 - 113^2)} \times \sqrt{(6 \times 2{,}602.79 - 124.9^2)}}$$

$$r = \frac{14{,}149.2 - 14{,}113.7}{\sqrt{77} \times \sqrt{16.64}}$$

$$r = \frac{35.5}{8.77 \times 4.08} = 35.5 / 35.78$$

r = **0.989**

3 marks for calculation

This means that there is a very high level of correlation between the two variables (over 99%). It does not indicate that there is a causal relationship between the two variables and therefore the results of the analysis must be treated with some caution. It should not be used for the basis for action without there being some evidence of causality. *2*

(8)

(20)

Question 3

Syllabus area D5; Study session 12

This question requires the production of a report. 1 mark should be awarded for using an appropriate format in terms of style, structure and content. This mark is to be taken from the marks allocated to part (a) of the question. *1*

(a) The basic requirements of an effective contract monitoring system and the processes that should be followed to manage performance.

A contract monitoring system needs to:

- Ensure the contractor is complying with the terms and conditions of the contract.
- Prevent non-compliance by identifying and resolving potential problems.
- Provide timely feedback to the contractor.
- Monitor cost.
- Ensure progress is made towards the contractor's expected outcomes.

These are the points made in the OLM but other points may be relevant
1 mark for each point subject to a maximum of 5

A formal contract monitoring system would normally comprise three stages. The first stage would be an analysis of current performance which would take the form of a review by the client. This review would be ongoing but there should also be milestones e.g. in holding review meetings etc. A timetable should be agreed between the client and the contractor. The client and the contractor should also agree upon their responsibilities within the process e.g. with regard to access to information etc. Performance measures should have been set within the contract itself. Activities may include:

- Asking the contractor to submit regular reports.
- User monitoring, making use of surveys and complaints procedures.
- Use of performance measures eg internal and external benchmarking, statistical and quantitative techniques.
- Review of contract invoices.
- Visits to facilities to carry out review and observations.
- Progress meetings between clients and contractors.
- Review of audit and other relevant reports eg health and safety.

1 mark for each relevant point subject to a maximum of 3

The second stage would be reporting findings. This would involve the production of formal and detailed contract monitoring reports at regular and frequent intervals. It is important that these are properly documented and agreement reached on dealing with any problems. *2*

The final stage would be to take corrective action. This would either be agreed with the contractor or could take the form of action prescribed in the contract in the case of non-compliance. *1*

This answer reflects the content of the OLM but the question could have been tackled differently and relevant and correct answers should be rewarded

(12)

(b) Suggestions for action that should be taken to resolve the concerns regarding the operation of the bar and catering facilities

Two concerns are mentioned in the scenario. The first is that opening times and bar prices are being changed without due notice and consultation. The opening times of the centres and, possibly the bar prices, should have been specified in the contract and it is likely that penalties will also have been identified for non-compliance. If this can not be resolved then the penalty clause should be invoked.

The second concern is that tables are not being cleared and serving areas are not being kept clean. This is a quality issue and one that is likely to have been revealed through site visits or from customer surveys. The reasons for this should be discussed with the contractors and, again, there may be penalties that can be claimed. The main priority should be that there is an improvement in the situation.

In both cases it may be that continued non-compliance could lead to cessation of the contract. However, there is an obvious need for some communication and the implementing of a contract monitoring process which includes provision for some kind of dialogue. This could improve the situation and avoid the need for more drastic action.

1 mark for reference to each of the concerns and 1 mark for overall comment up to a maximum of (3)

(15)

Question 4

Syllabus area A4; OLM Study Session 19 and also covered in Technical Article April 2006

(a) Calculate the financial implications of both of the proposals.

There are two proposals to be evaluated.

Finance Director proposal:

This proposes that a Credit Control Manager be appointed. The cost of this would be the cost of the appointment plus the cost resulting from the reduction in turnover. Contribution is 20% of turnover.

Cost of proposal:

Cost of Manager £25,000
Loss of contribution 20% of 5% of £40m = £400,000
Total cost = £425,000 *2*

Savings:

The current average debt period is 10/40 x 365 = 91.25 days
This would reduce to 40 days
The reduction would be 51.25 days *1*

The daily rate of interest is 9%/365 = 0.0002466%
This is simple interest *1*

Savings are (95% of £40m) x 0.0002466 x 51.25 = £480,254 *2*

This is a net saving of £55,254 *1*

Compound interest may be used, giving a slightly different figure.

Marketing Director proposal:

This proposes that a 2% discount be offered for payment within 30 days. There are two ways in which this can be calculated (see OLM and Technical Article – either method may be used although the first method is preferable).

Method 1

The cost of the discount is 60% of £40m x 2% = £480,000 *2*

The daily interest rate is 0.0002466% (see above)

The current average debt period is 91.25 days (see above)

It can be assumed that "within 30 days" means 30 days (this is a normal and prudent assumption).

This means that 60% of debtors will pay 61.25 days earlier *1*

The saving is 60% of (£40m x 98%) x 0.0002466 x 61.25 = £355,252 *2*

Compound interest may be used, giving a slightly different figure.

Method 2

The discount calculation is as above. *2*

Under the proposal 60% will be paying in 30 days and the remainder will still be taking an average of 91.25 days. The new weighted average period will be

60% of 30 plus 40% of 91.25 = 54.5 days *1*

This gives a new debtors figure of 54.5/365 x £40m = £5,972,603 *1*

The interest saving would be (£10m - £5,972,603) x 9% = £362,466 *1*

Other alternative calculations may be acceptable depending upon assumptions made on discounts and turnover.

(12)

(b) Recommend what action, if any, should be taken.

The Marketing Director's proposal would cause a loss for the company. In addition there is some doubt over the projected effects of the discount offer. Any shortfall would make the situation worse.

The Finance director's proposal would be beneficial and the margin of benefit is such to suggest that the proposal would still be of benefit even if the estimated effect on debt were over optimistic.

It would be reasonable to recommend accepting the Finance director's proposal.

1 mark for consideration of each of the proposals plus 1 mark for overall recommendation up to a maximum of (3)

(15)

Question 5

Syllabus area A3; OLM Study Session 18

(a) Explain why the Baumol Model is inappropriate for Teach the World. Why might the Miller-Orr Model be more helpful and how should it be used?

The Baumol Model makes a number of assumptions that are inappropriate for Teach the World.

- Cash flows are certain and constant. This is not the case with teach the World as some of the income streams are unpredictable.
- Income flows are regular and periodic. Again, this is not true. Teach the World may receive exceptionally large inflows at times.
- The Model assumes there are no costs associated with running out of cash and there is no overdraft. Balances have been dangerously low at times.

1 mark for each point subject to a maximum of 2

Miller-Orr offers features which might be more helpful.

- Cash flows may be random.
- The Model can deal with large and small amounts and irregularity.
- It is much more realistic and offers a good basis for controlling the management of cash.

1 mark for each point subject to a maximum of 2

The Model operates through the calculation and use of control limits. The lower limit can be set by management and the upper limit is calculated from data reflecting knowledge of how cash flows occur. The Model calculates a target balance which is used as the control amount. When either the upper or lower limit is reached transfers can be made which reinstate the target balance. The Model forms the basis for continuous monitoring of cash balances.

1 mark for each point subject to a maximum of 2

(6)

(b) Calculate the target cash balance for Teach the World, the upper limit and the estimated average balance.

A series of formulae are used for the calculation of the target balance Z, the upper limit H and the average balance W.

$$Z = \sqrt[3]{\frac{3F\sigma^2}{4K}} + L$$

$$H = 3Z - 2L$$

$$W = (4Z - L) / 3$$

where, F is the transaction cost

and σ^2 is the variance of daily net cash flows

K is the daily opportunity cost of cash balances

K = $\sqrt[D]{(1+R)}$ - 1 where R is the rate , and D is the number of days (365)

K = $\sqrt[365]{(1+0.09)}$ - 1 = 1.000236131 – 1 = **0.000236131** *2*

Simple interest may be used based upon 0.09/365 = 0.000247

This can be accepted but only 1 mark is to be awarded

σ^2 is the variance and is calculated using the standard deviation
σ^2 = 350^2 = **122,500** *1*

$Z = \sqrt[3]{\frac{3F\sigma^2}{4K}} + L = \sqrt[3]{}$ [(3 x 70 x 122,500)/ (4 x 0.000263131)]

= $\sqrt[3]{}$ [(25,725,000)/ (0.000944524)] + 10,000

= $\sqrt[3]{}$ (27,235,941,070) = 3,008 + 10,000 = **13,008** *2*

H = 3Z – 2L

= (3 x 13,008) – (2 x 10,000) = **£19,024** *2*

W = (4Z – L) / 3

= (4 x 13,008 – 10,000)/ 3

= **£14,011** *2*

(9)

(15)

Question 6

Syllabus area C2; OLM Study Session 15

(a) What is the finance function and why is it so important to public sector organisations?

The finance function covers all the financial work of the organisation and includes

- The processing and recording of financial transactions.
- The production of financial accounting information.
- The production of financial management information and advice to managers at all levels in the organisation.
- Ensuring adequate internal controls and assuring the accuracy and relevance of financial information.

It is particularly important in public sector organisations as they make use of public money and must aim to provide value for money in all their financial transactions.

2 marks for definition of the finance function which provides some detail of what is involved, only 1 mark for general definition, 1 mark for explanation of importance in public sector

(3)

(b) The finance function can be centralised or decentralised. What do you understand by these descriptions? How would decentralisation work and what are the advantages and disadvantages of this approach?

Centralisation involves collecting together all (or most of) the finance function into one department. This represents the traditional approach. It should be noted that it would never be possible to do all of the finance work centrally and there will always be some element of decentralisation. *1*

Decentralisation involves a deliberate policy of moving work out of a central department in order to locate it in other (often service providing) departments of an organisation. Decentralisation can be achieved in a number of ways but the two main approaches are delegation of functions and devolution. Delegation is where functions are released to other departments but control is still retained in the finance department. In devolution the responsibility for the functions is also decentralised.

1 mark for general definition of decentralisation plus 1 mark each for mention and brief explanation of delegation and devolution up to a maximum of 3

The advantages of decentralisation are (or may be):

- Encourages a wider accountability.
- Shifts decision making away from the centre.
- Systems and procedures can be tailored to departmental needs.
- Speedier decision making is made possible.
- Frees up finance specialists for more strategic roles.

The disadvantages may be:
- Loss of economies of scale.
- Too much needless duplication.
- A loss of central control over systems and procedures.
- Difficult to ensure minimum standards.

½ mark for each advantage/disadvantage subject to a maximum of 2

(6)

(c) Some organisations have chosen to outsource some or all of their finance function. What does this involve and what are the potential benefits?

Outsourcing is where all or part of the finance function is provided by an external provider. This will usually involve the identification and specification of relevant areas, prior to going out to tender and the awarding of a contract to an appropriate supplier of services. *1*

The potential benefits are:
- The possibility of making savings.
- Tapping into the expertise of a larger and possibly more specialised organisation (particularly for smaller organisations).
- The reduction of budget risk.
- Allowing in house specialist to develop appropriate specialisms and to concentrate upon strategic issues.

1 mark for each relevant point subject to a maximum of 2

(3)

(d) More recently there is a trend towards exploring the possibility of "shared services". How might this work and what are the dangers of taking this approach?

Shared services would involve two or more organisations setting up a joint administrative function and this might include the operation of all or part of the finance function. This could, for example, be a venture between district councils or PCTs. This could bring about some of the same benefits as outsourcing. The costs would be shared between the participating organisations. *1*

There are some dangers of this type of approach:
- The shared service might have to compromise on systems and procedures to meet the needs of more than one organisation.
- Costs may escalate as the shared service develops its own strategy for the future.
- There could be communications problems.
- There may be lack of accountability.

1 mark for each relevant point subject to a maximum of 2

(3)

Note that for all the above sections there may be alternative points that could be relevant and which should be rewarded

(15)

Question 7

Syllabus areas E3; OLM Study Session 9

(a) Calculate the Net Present Value (NPV) and Internal Rate of Return (IRR) of the proposed investment.

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
	£	£	£	£	£	£
Purchase of vehicles	(135,000)					
Savings		20,000	35,000	35,000	35,000	35,000
Disposal of vehicles						15,000
Total	(135,000)	20,000	35,000	35,000	35,000	50,000
PV factor	1.000	0.9434	0.8900	0.8396	0.7921	0.7473
Present Value	(135,000)	18,868	31,150	29,386	27,724	37,365

Net Present Value is **£9,493** *4*

Internal Rate of Return

Choose a higher discount rate (say 10%)

PV factor	1.000	0.9091	0.8264	0.7513	0.6830	0.6209
Present Value	(135,000)	18,182	28,924	26,296	23,905	31,045

Gives NPV of (6,648)

Using the interpolative method

IRR = 6 + [9,493 x (10 – 6)]/ (9,493 + 6,648) = 6 + (37,972/16,141) = **8.35%** *4*

(8)

(b) What decision rules should be applied for the use of Net Present Value?

The decision rules (as set out in the OLM) are:

1. When considering an individual project, accept it if it gives a positive NPV.
2. Where projects are competing, select the project with the highest positive NPV.
3. Where projects are competing but show negative NPVs, select the project with the lowest negative NPV.

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

(c) Why is it necessary to discount cash flows when considering the future effects of investment decisions?

The discounting of cash flows is necessary because:

- It coverts cash inflows and outflows from different years into a common currency.
- It reflects the time value of money.
- It facilities comparisons (by bringing future cash flows back to present value).
- It takes account of the uncertainty and risk which is inherent in projecting cash flows into the future.
- It takes account of the opportunity costs of the alternative use of resources.
- It reflects the subjective time preference ie that people/organisations will always want to have control over resources now rather than in the future.

1 mark for each relevant point made subject to a maximum of (4)

(15)