

INFORMATION MANAGEMENT AND CONTROL

Professional 1
June 1999

MARKING SCHEME

The logo for CIPFA, consisting of the letters 'CIPFA' in a serif font. The letter 'I' is stylized with a curved line above it that loops around the top of the 'P'.

Question 1

This question is drawn from Sections 2.2.1 and 2.2.2 of the OLM, and is designed to test students' knowledge of the early - and critical - stages of the system-selection process.

- (a) The relevant stages of the Systems Development Life Cycle - as formalised to an extent in SSADM - leading up to the decision about whether to buy a package system or commission a bespoke one are as follows:

- Feasibility Study
- Systems Analysis
- Systems Design

The remaining two sections, Systems Implementation and Systems Maintenance, are **not** relevant to this question.

Marks should be awarded for both correctly naming the three relevant sections and describing their main attributes as follows:

Feasibility Study (or 'Preliminary Investigation' or 'Systems Survey') (1)

- Identification of the requirement(s) including confirmation that a genuine requirement actually exists. 1
- Assessment about whether the project is technically, economically and operationally feasible. 1

and similar points with a maximum for this sub-section of (2)

Systems Analysis (understanding the current system and then establishing the requirements of the new one) (2)

- The 'Data-Gathering' phase. 1
- The 'Data-Analysis' phase. 1

and similar points, with a maximum for this sub-section of (2)

Systems Design (consideration of the major issues and then, if appropriate: it's not in this case - the detailed design of the system) 1

- The physical location of the system, 1
- Typical reports required, 1
- Choice of bespoke or package. 1

and similar points, with a maximum for this sub-section of (3)
(10)

- (b) The Software Evaluation Criteria that should be applied if it is decided to investigate the acquisition of a 'package' solution are shown below. There is a mark for each of the ten criteria. Markers should award *1/2 a mark* for correctly (within reason) naming a given criterion, and *1/2 a mark* for a reasonable summary of the issues involved.

Meeting Requirements

Does the package meet the User Requirements? If not, can it be tailored at a reasonable cost?

Are any similar organisations using that package? If so, are reference sites available?

1

Hardware

Does the current or suggested hardware support the proposed software without any additions or alterations?

1

Operating System Software

Is the software compatible with the organisation's current operating system(s)?

1

Efficiency

How much of the computer system's memory, CPU and other resources does the package require to run successfully?

1

Security and Control

Does the package provide an adequate level of editing, validation, verification, audit trail and other control features?

Does the package provide appropriate levels of security?

1

User-computer Interface

Is it easy to enter, correct and manipulate data?

Are there query facilities for displaying data, and are they easy to use?

Is there an on-line help facility?

Are the screens and menus easy to use?

1

Training

What is provided?

How much?
Where?
What's needed?

1

User Support

What level of computing expertise is required of the User?
Is there a software user group?
Does the vendor supply comprehensive training for users?
Is there local support and/or a help line for queries and problems?

1

Vendor

Is the vendor viable - what is the vendor's financial status?
How long has it been in business?
Can performance claims be substantiated?

1

Documentation

How well is the package documented?
Does it come with user-friendly guides?
Does it provide technical manuals for those having to provide technical support?

1

Package viability

Does the package appear to be viable for the whole of its expected life?
Is it flexible enough to cope with changes of hardware, operating systems and/or user requirements?

1

(10)

(20)

Question 2

This question is drawn from Sections 4.2.1 and 4.1.3 of the OLM, and is designed to test students' understanding of both the theory of control systems (with particular reference to feedforward systems) and the application of that theory in practice.

(a) The objectives of control systems are as follows:

Preventative

1

- Ensure the accuracy of data stored in the system.
- Ensure the validity of data stored in the system.
- Protect the organisation's resources from accidental or intentional damage or loss.

one mark for these and similar points, with a maximum for this sub-section of 2
(3)

Monitoring

1

- Provide managers with information on the organisation's performance.
- Provide managers with timely control data so that they can make the necessary adjustment(s) to ensure the continued viability of the system.
- Provide a mechanism for returning the system to its 'steady state'.

one mark for these and similar points, with a maximum for this sub-section of 2
(3)

Management Control

1

- Provide a mechanism to adjust the goals and objectives and associated plans of the organisation, such as a double-learning loop.
- Support employee conformity with respect to the procedures of the organisation by ensuring that all appropriate rules are followed.

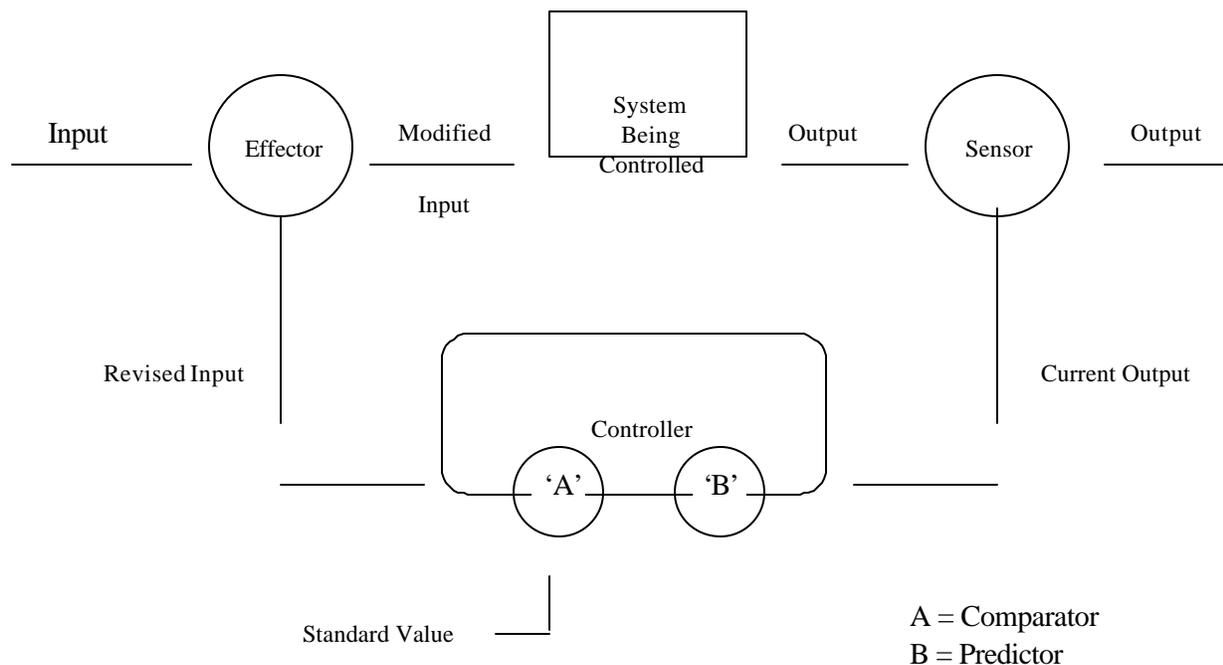
one mark for these and similar points, with a maximum for this sub-section of 1
(2)

(8)

- (b) The essential element of a typical feedforward system is one that takes information about the results of a process and uses that information to predict the future outcome of the current trend and thus adjust one or more attributes - e.g. rate of production or spending - in advance of a problem occurring. In a feedback-controlled system, results from a period - e.g. monthly or quarterly returns - are used to make adjustments, but only after an undesirable condition - e.g. a shortage of stock or an overspend - has occurred. The arrival of Executive Information Systems has provided the mechanism to obtain the early data required to assess the *projected* impact of the current performance and so make an adjustment in advance of the period-end results.

Marks should be award as follows:

- For a good description of a feedforward system, highlighting the key points listed above and bringing in the advent of EIS to help achieve the desired results. 4
- For correctly describing the difference between, and the benefits over, a similar feedback system. 2
- For a good reproduction of the diagram below. 6



N.B. 'Effector' and/or 'Sensor' can be shown within the 'Controller'

<i>For a basic recognisable attempt</i>	<i>1</i>
<i>For a diagram with at least 2 elements correct</i>	<i>2</i>
<i>For a diagram with at least 4 elements correct</i>	<i>3</i>
<i>For a diagram with at least 6 elements correct</i>	<i>4</i>
<i>For a nearly complete diagram with at least 8 elements correct</i>	<i>5</i>
<i>For a full diagram with all elements correctly depicted</i>	<i>6</i>
	<i>(12)</i>
	<i>(20)</i>

Question 3

This question refers to Sections 1.7.3 and 1.7.11

Brief introduction explaining the importance of systems theory in understanding the relationships between sections, departments, the organisation and the environment. 2

Explanation of what constitutes a complex integrated AIS e.g. record flow of funds through an organisation and produce financial statements and other financial information. Aspects include payroll, sales ledger, order processing, inventory etc. 2

NB Markers should note that for full credit to be awarded each element of the system should be accompanied by a pertinent example from an AIS.

For example:

System - Group of interrelated elements organised to accomplish a common purpose, in this case this should be the AIS.

Subsystem - Has the essential features of a system and interlinks with other subsystems to form the system, examples from AIS include sales ledger and inventory.

System Boundary - Boundary between system and its environment with AIS - this could be interaction with suppliers or customers.

Interface - Output from one system or subsystem crosses an interface and becomes the input for another e.g. payroll files output from payroll and input to general ledger.

Adaptive System - A system that has the ability to change itself in order to survive e.g. an AIS would need to be flexible enough to adjust to changes in tax rates etc.

2 marks per item, 1 for identification, 1 for appropriate example to a maximum of 16
16

(20)

Question 4

This question refers to Section 5.5 of the Open Learning Material

(a) **Salaries Technical Staff**

Total salaries @ 1999 levels

	£
Senior Technician	14,500
Junior Technician	11,800
Junior Technician	11,800
Photographer	12,000
Reprographics Section	9,400
Total	<u>59,500</u>

This level of salary will be incurred from 1st August 1999 to 31st March 2000 i.e. 8 months.

Remaining 4 months will be subject to 2 % increase $£59,500 + 2\% = £60,690$

Total Salary:

	£	
£59,500 x 8/12 =	39,667	1/2
£60,690 x 4/12 =	<u>20,230</u>	1/2
	59,897	
x 10%	5,990	1/2 (National Insurance)
x 5%	<u>2,995</u>	1/2 (Pension Contribution)
	<u>68,882</u>	

Salaries Administrative Staff

Total salaries @ September 1998 level:

	£
Reprographics Manager	16,900
Receptionist/Administrator	10,300
	<u>27,200</u>

This level will be incurred for 1 month. A 2.5% salary increase will be applied from 1st September 1999.

Revised level = £27,200 + 2.5% = £27,880

Total administrative salaries for 1999 - 2000:

	£	
£27,200 x 1 /12 =	2,267	1/2
£27,880 x 11/12 =	25,557	1/2
	<hr/> 27,824	
x 10%	2,782	1/2 (National Insurance)
x 5%	1,391	1/2 (Superannuation)
	<hr/> 31,997	

Repairs

£7,500 - £5,000 + £2,000 = £4,500
 + 1.5% = £4,568 1

Asset Rental

200 sqm x £30 = £6,000 1/2

Travelling Expenses

1500 miles x £0.45 = £675 1/2

Stationery

1998 - 99 revised outturn = £284,600

x 80% + 2% =	232,234	1/2
plus balance =	<hr/> 56,920	
	289,154	
+ 3% =	297,829	1/2

Telephones, Employee Liability & Miscellaneous

	1998/99	1999/2000	
	Budget	(+2%)	
Telephones	6,000	6,120)

Information Management and Control
Marking Scheme

June 1999

Employee Liability Insurance	200	204)1½
Miscellaneous	150	153)

Agency & Leasing

Leasing in 1999/2000 will be £18,000 plus £20,000/£1,000 x 100 = £20,000

1/2

Agency = £8,000 x 75% = £6,000

1/2

Central Costs

	1998/99	1999/2000 (+2.5)	
Accountancy	3,000	3,075)
Audit	1,000	1,025) 1/2
Legal	500	513)

Internal Printing Receipts

Income

		1998-99	
		Projected Annual Copy Level	
Copies A3	1,050,000	1,166,667)
A4	6,500,000	7,222,222) 1/2
A5	800,000	888,888)

This represents 10 months data i.e. to May 1999

Peak months: August 30%
January 20%

Therefore remaining 50% assumed to be incurred evenly throughout other 10 months i.e. 5% per month. Therefore, these amounts represent 90% of total annual copies. 1

The 1998 - 99 volumes then need to be adjusted to take account of increased student numbers.

	Copies	80% x 2% Academic	20% Administration	Total
A3	1,166,667	952,000	233,333	1,185,333
A4	7,222,222	5,893,333	1,444,444	7,337,777
A5	888,888	725,332	177,778	903,110

1 mark to be allocated for recognising the split and 1 mark for identifying the effect of increased student numbers.(2)

Charge rates increase by £0.01 therefore new rates =

		Total Income	
		£	
A3	5p	59,267	
A4	3p	220,133	
A5	3p	27,093	
	Total	306,493	<i>1½</i>

Internal & External Special Jobs

	1998/99 Outturn	1999/2000 (+1%)	
	£	£	
Internal	107,800	108,878	<i>½</i>
External	20,000	20,200	<i>½</i>

Student Copying

	1998/99	1999/2000	
	£	(+2% growth in student numbers)	
		(+2% inflation)	
Student Copying	3,000	3,121	<i>½ mark growth ½ mark inflation</i>

**Lanka College of Further Education - Budget For The Financial Year 1st
August 1999 to 31 July 2000**

	£
Salaries - Technical	68,882
Salaries - Administration	31,997
Premises - Repairs	4,568
Premises - Asset Rental	6,000
Transport - Travel Expenses	675
Supplies & Services - Stationery	297,829
Supplies & Services - Telephones	6,120
Supplies & Services - Employee Liability Insurance	204
Supplies & Services - Miscellaneous	153
Agency & Contracted Services - Special Print Runs	6,000
Central Support - Accountancy	3,075
Central Support - Audit	1,025
Central Support - Legal	513
Capital Finance - Lease Charges	20,000
Total Expenditure	447,041
 Income	
Printing Receipts (Internal)	306,493
Special Jobs (Internal)	108,878
Student Printing Receipts	3,121
Special Jobs (External)	20,200
Total Income	438,692
Surplus /Deficit	(8,349)
 <i>Presentation of budget report</i>	 <i>1</i>
	 <i>(20)</i>

Question 5

This question refers to section 5.7 of the OLM

- (a) *Marks to be awarded 1/2 mark per valid point. Characteristics 2 marks maximum and importance 2 marks maximum.*

Relevant examples include:

Characteristics

- Expenditure is upon assets which have a useful life of more than one financial year.
- Capital projects may begin and end in different financial years.
- Individual capital projects may involve substantial amounts of money.
- Capital expenditure can have considerable impact upon revenue budgets.
- The financing of capital projects will often involve the deferring of payment until future financial years.

Importance

- It is important to manage capital budgets effectively to ensure that it is matched to available finance or finance approvals.
 - Managing capital expenditure effectively will ensure the consideration of priorities and therefore help to ensure that scarce resources are being employed to their best effect.
 - To ensure that capital projects are in line with the overall policy objectives of the organisation.
 - Part of the process will involve the estimation of the revenue effects of the capital expenditure, this is an important aspect of the process so that the organisation can plan for these effects in the future.
- (b) Consideration of the existing programme and establishing position of current schemes.
- Are there any major impacts on the programme resulting from changes in corporate policy?

- Department heads to supply details of new schemes which fall within the organisation's strategic goals.
- Appraise alternative schemes in relation to: feasibility, scheduling, financial implications, outcomes.
- Consultation with any appropriate external parties.
- Approval by organisation's top decision makers.
- Monitoring during the financial year will focus on overall financing position from a cashflow perspective.
- The programme will also be monitored to ensure compliance with external controls.
- There will also be monitoring of physical progress against schedules. This may involve re-estimation of the likely revenue effects of individual schemes.
- Each individual scheme will also be monitored in relation to costs.
- Provision of suitable, timely reports to appropriate managers.

This monitoring information will then feedback in the production of the next year's capital programme.

1½ mark per point to a maximum of 6

N.B markers should note that for full credit to be awarded candidates should make reference to the whole process of developing and monitoring a capital programme not just a part or sections of it.

(c) The limiting factors should be identified as:

- Finance;
- Government and EU controls;
- Revenue Consequences.

½ mark should be awarded for the identification of each factor

Finance - capital programmes may be limited by the availability of finance. Availability may be affected by external controls, legislation or with the willingness of other bodies to provide the finance.

1½

Government and EU controls - Mention should be made of credit approvals and external financing limits. 1

Revenue Consequences - There is little point in approving a capital scheme if there is not revenue budget available to meet the revenue consequences. 1

3 marks are available for pertinent examples from the candidate's own experience

(d) This section is designed to test the candidate's awareness of developments in this field. Obviously the response may vary depending on the candidate's background but a typical response may include reference to the Private Finance Initiative and the new systems which may have to be developed in response, and the difficulties which may be involved in finding a suitable partner. 2

(20)

Question 6

This question is largely covered by Section 7.3 of the Open Learning Materials.

(a) **The key feature of a feasibility study would normally be**

- Cost: can the organisation finance the project within existing budgets and/or resources? If there are alternatives, what are the financial implications of each? Consider capital and revenue implications and financing arrangements.
- Timing: if time is a constraint how does the project match up to the time available? What are the alternatives? Consider legal or governmental requirements as well as operational and/or financial considerations.
- Performance: to what extent will the project satisfy the performance criteria which have been set? The criteria may be technical, service based or may arise from the requirements of external stakeholders including regulatory bodies and customers.
- Organisational context: is the project feasible within the context of the organisation itself? Consider organisational policies and the overall culture within which it operates as well as the extent to which the project will fit in with existing systems and other projects.

1½ marks for each of the above features, 1 mark for listing the feature and an additional ½ mark for relevant explanation.

6

(b) **Feasibility report**

Bearing in mind the above features, the form of the report can obviously vary. Typical content as set out in the learning Materials (7.3.2) would include

- Project definition;
- General background;
- Clear definition of success criteria or feasibility criteria;
- Findings of the feasibility study;
- Financial appraisal;
- Preliminary compliance;
- Organisational suitability;
- Implementation plan.

¾ of a mark for each point subject to a maximum of 6 marks.

Candidates may introduce alternative points or may present their answer in a different format.

Credit should be given as appropriate.

(c) **Identify a live project and examine in relation to feasibility**

Candidates should consider the actual procedures to be used. Marks should be awarded for ability to relate the concept of a feasibility study to a practical situation. The best answers will be well organised and will demonstrate the way in which the key features and the report format should be used in practice.

8

(20)

Question 7

**Crook Borough Council Vehicle Maintenance Business Unit
 Servicing of council operated vehicles**

Standard Cost	£	£
Materials		
Oil	21.00	
Sparkplugs	6.00	
Filters	7.00	
Gasketsets	7.00	41.00
Labour		21.00
Variable Overhead		10.65
Fixed Overhead		22.35
Total Cost		<u>95.00</u>

Budget for 3 months to 30th June 1999

	£	£
Income		6,650.00
Materials		
Oil	1,470.00	
Sparkplugs	420.00	
Filters	490.00	
Gasketsets	490.00	2,870.00
Labour		1,470.00
Variable Overhead		745.50
Fixed Overhead		1,564.50
		<u>6,650.00</u>

Variance Statement

	Budget		Actual		Variance	
	£	£	£	£	£	£
Income		6,650.00		6,650.00		0.00
Material						
Oil	1,470.00		1,518.00		48.00	
Sparkplugs	420.00		406.00		-14.00	
Filters	490.00		420.00		-70.00	
Gasketsets	490.00	2,870.00	393.00	2,737.00	-97.00	-133.00
Labour		1,470.00		1,775.00		305.00
Variable		745.50		875.00		129.50
Overhead						
Fixed		1,564.50		2,125.00		560.50
Overhead						
Total Cost		<u>6,650.00</u>		<u>7,512.00</u>		<u>862.00</u>

Analysis

Materials							
Oil	Price	22.00	Adv				
	Usage	70.00	Fav	48.00	Fav		
Sparkplugs	Price	14.00	Adv				
	Usage	0.00		14.00	Adv		
Filters	Price	0.00					
	Usage	70.00	Adv	70.00	Adv		
Gasketsets	Price	31.50	Adv				
	Usage	65.50	Adv	97.00	Adv	133.00	Adv
Labour							
	Rate	25.00	Fav				
	Efficiency	280.00	Fav			305.00	Fav
Variable							
Overhead							
	Rate	10.50	Adv				
	Efficiency	140.00	Fav			129.50	Fav
Fixed						560.50	Fav
Overhead							
Total						<u>862.00</u>	<u>Fav</u>
							(8)

Question 7

The question quite deliberately does not provide students with guidance on the form and content of the report which they are required to produce. It follows that the actual answers may vary somewhat but there are certain elements that can be expected as part of a satisfactory answer. Marks are awarded below on that basis but markers should allow for some flexibility on this question and for the use of discretion in the allocation of marks to individual candidates.

- Overall format, to include structure, style and inclusion of appropriate conclusions and recommendations. 3
 - Heading, brief introduction and background. 1
 - Calculations: detailed calculations to be in an appendix with summary as appropriate within the main report. Calculations to cover:
 - Standard cost of product; 2
 - Budget statement for 3 month period; 2
 - Variance analysis showing variations between budget and actuals. 4
- (see details of the calculations)* (8)
- Comment upon position shown by calculations. Comment should relate to actual calculations carried out and would normally cover significant adverse and favourable variances. Better answers would probably deal with this area and the consideration of issues together. Markers may vire marks between these areas. 3
 - Comment upon issues and their effect upon the standard costs and the variances, for example:
 - Estimating of materials costs;
 - Estimating of labour efficiency;
 - Fixed overhead - reduction in volume and effect of reduced activity level;
 - Estimating of pay rates;
 - Effect of using inferior products on efficiency and effectiveness. 3
 - Overall conclusions and recommendations. Most important that they be fully supported by evidence and argument within the report itself. 2

(20)

Whilst discretion may be shown, no more than *8 marks* should be awarded for the calculations. The balance of the marks should be awarded to the Manager.

(20)