INFORMATION MANAGEMENT & CONTROL

Professional 1 examination
8 June 2000

From 2.00 pm to 5.00 pm
plus ten minutes reading time from 1.50 pm to 2.00 pm

Instructions to candidates

*Answer **five** questions in total: **Two** questions from Section **A**, and **three** questions from Section **B**. The marks available for each question are shown in italics in the right-hand margin.*

All workings should be shown. Where calculations are required using formulae, calculators may be used but steps in the workings must be shown. Calculations with no evidence of this (for example, using the scientific functions of calculators) will receive no credit. Programmable calculators are not permitted in the examinations room.

Formula sheets, statistical tables, graph paper and cash analysis paper are available from the invigilator, where applicable.

SECTION A (Answer two questions)

1

During last year's review of the various in-house computer systems as part of the 'Millennium Bug' preparations, your computer auditor discovered a number of other potential threats, including those of unauthorised access and the introduction of computer viruses. She is particularly concerned because as a result of your modernisation, your computer environment includes a number of local area networks with access to the Internet and also a public-access intranet.

Now that all systems are Year 2000 compliant, the auditor suggests that you – as the new Assistant Director of Finance with specific responsibilities for computer security – undertake a review of all aspects of computer security.

· **Requirement for question 1**

The three key elements of any computer system are hardware, software and data. Each has its own unique vulnerabilities and associated techniques for reducing or countering those vulnerabilities.

(a) Outline the dangers relating to hardware and give examples of how these could be minimised and/or removed. *6*

(b) Outline the dangers relating to software and give examples of how these could be minimised and/or removed. *6*

(c) Outline the dangers relating to data and give examples of how these could be minimised and/or removed. *6*

(d) Name two statutes which are *specifically* designed to help to prevent computer misuse. *2*

(20)

2 As the result of the creation of a number of Primary Care Groups ('PCGs') within the Health Authority for which you have responsibility as Group Accountant, it has been decided to abandon the old accounting system and start investing in a suite of enterprise-wide programs which will provide a broad range of management information about the people, the services and the finances in anticipation of the creation of a Primary Care Trust ('PCT').

Many different groups will be represented, and you have been asked to lead the project on behalf of the Health Authority. You are to begin by making a non-technical presentation to the various groups on some of the issues involved so that they can become more effective members of your team. The design methodology that you will be using is that known as Structured Systems Analysis and Design Methodology ('SSADM'). You are also aware that as part of the analysis, the systems analysts will be producing a number of data-flow diagrams and entity models, and it is important that all members of the team can understand and interpret these so that they can validate their respective elements.

· **Requirement for question 2**

(a) Name and briefly describe the three 'views' used by SSADM, and prepare a set of notes naming and briefly describing, in order, the five modules that comprise SSADM. *11*

(b) Name the five elements illustrated by data-flow diagrams.
(NB Illustrations of those elements are *not* required). *2½*

(c) Draw an example of a realistic entity model showing the relationships between products, customers, orders, invoices and delivery. Your illustration should include examples of one-to-one, one-to-many and many-to-many relationships using appropriate conventional symbols (and you should label each relationship to show which is which). *6½*

(20)

3 The senior management team within your public service sector organisation has become interested in the potential impact on the organisation of the development of e-commerce. A working group has been set up with the initial aim of reporting to the senior management team and making recommendations for action to be taken in the future.

You have been asked to contribute to a background briefing note which is to be presented at the first meeting of the working group.

· **Requirement for question 3**

Produce a briefing note on the potential implications of e-commerce for the organisation covering:

(a) A description of e-commerce and the forms it can take. *5*

(b) The general aims of e-commerce. *5*

(c) Possible public sector uses (as supplier and as customer). *5*

(d) Potential problem areas. *5*

(20)

SECTION B (Answer three questions)

4 You have just started a new job as a senior management accountant with a large university. Your role will be to liaise with the heads of the academic schools with regard to the setting and monitoring of their devolved annual budget.

At a recent meeting with the Director of Finance you were asked to develop a plan as to how you will tackle the job. At the meeting, the Director outlined the following difficulties which will need to be addressed:

- The academic heads have mixed views with regard to devolved budgetary control. Some see it as an opportunity, whilst others are threatened and some are openly hostile.

- Most of the heads are sceptical about the information provided by the finance department and unclear as to the role of the management accountant in supporting the heads of the academic schools.

- There is considerable conflict between the academic schools over resources, which sometimes leads to dysfunctional behaviour.

- There is considerable dissatisfaction with regard to the proportion of the budget which relates to academic support services such as the library and computer support. At present this accounts for 40% of the academic departments' budgets and the heads feel that they are not receiving value for money.

· **Requirement for question 4**

Prepare the plan as requested by the Director of Finance to address the above issues. The plan should be presented in the form of a table detailing:

- the actions to be taken, and
- a corresponding explanation or explanations.

(20)

5

The Pharmacy Department of Inca General Hospital issues treatment packs for standard medical procedures. These are made up of various components, and their aim is to save time for the pharmacy as only one issue has to be made and thus save waiting time for the medical staff. The details for the packs are as follows:

Materials:

Number of components required per pack

	P	**E**	**R**	**U**
Pack N	3	5	1	10
Pack A	3	2	2	8
Pack Z	2	4	1	6

	P	**E**	**R**	**U**
Cost per component	£25	£40	£80	£15

Labour:

Hours required per product

	Assembly	**Packaging**
Pack N	4	1
Pack A	3	0.5
Pack Z	2	0.5

	Assembly	**Packaging**
Rate per labour hour	£10	£6

Overheads are recovered against each pack as a percentage of the direct materials cost.

Estimated overheads for the year to 31 March 2001 are:

	£
Indirect labour	8,000
Indirect materials	5,000
General overheads	4,000

Forecasted issues for the year ended 31 March 2001 are as follows:

Pack N 800 units at £560 per unit

Pack A 1,000 units at £500 per unit

Pack Z 1,500 units at £400 per unit

Stock levels of packs as at 1 April 2000 are:

Pack N 50 units

Pack A 20 units

Pack Z 40 units

Planned stock levels for 31 March 2001 are 5% of the issues for the year for each pack.

The overall objective of the pharmacy is to break even.

- **Requirement for question 5**

(a) Prepare the budget for issues, production, material usage, material purchase, production overheads and labour. *10*

(b) Produce a budgeted production cost statement and budgeted profit and loss account for the year ending 31 March 2001. *5*

(c) Comment on the projected results including some consideration as to whether it would be worthwhile extending the existing range of treatment packs to other standard medical procedures. *5*

(20)

6 Westrill plc produces a range of standard products. Product AB has been costed as follows:

Labour

Skilled	2 hours @ £7.00 per hour
Unskilled	3 hours @ £5.50 per hour

Materials

Consumable X	12 kilos @ £6 per kilo
Component Y	1 unit @ £225 per 10 units
Component Z	2 units @ £300 per 10 units
Variable overhead	£2.50 per labour hour
Fixed overhead	£4.00 per labour hour

Normal production for the quarter ending 30 June 2000 is 1,400 units, and the standard selling price of product AB is £250.

Actual costs and revenue for the quarter ending 30 June 2000:

		£
Sales	1,300 @ £245	318,500
Labour		
Skilled	2,650 @£6.90	18,285
Unskilled	4,000 @ £5.80	23,200
Materials		
Consumable X	17,000 @ £5.90	100,300
Component Y	1,450 @ £230 per 10 units	33,350
Component Z	2,500 @ £330 per 10 units	82,500
Variable overhead	£2.65 per hour	17,622.50
Fixed overhead	£4.60 per hour	30,590.00
		305,847.50
Profit		12,652.50

NB: Stock levels remained unchanged throughout this period

· **Requirement for question 6**

(a) Calculate the standard cost per unit of AB and produce a budgeted profit and loss account for the actual production achieved for the quarter ended 30 June 2000. *5*

(b) Produce a variance analysis. *9*

(c) Prepare a statement reconciling actual and budgeted profit and identify areas for further investigation. *6*

(20)

7 Your public service sector organisation has been concerned for some time about the effectiveness of its communications and particularly the amount of paper in circulation and in storage. A decision has been taken to pilot a document imaging system in one department with a view to extending it eventually to the whole organisation, subject to a satisfactory evaluation. This decision has been taken in the face of some internal opposition, and it is vital that the pilot is managed effectively and that cost and time constraints are met.

Initial planning has taken place and the main activities and their sequencing have been identified. The table below summarises this along with time and cost estimates for each activity.

Activity	Preceding activity	Normal duration (weeks)	Cost (£)
A	-	1	500
B	A	4	4,000
C	B	2	800
D	A	3	3,000
E	C	7	1,000
F	D	18	9,000
G	C	9	4,500
H	G	5	2,000
I	E	4	1,000
J	H	2	-
K	J	4	-
L	KIF	7	500

The budget for the pilot is £45,000 which includes cost of equipment of £15,000. The pilot must be completed within 26 weeks in order for an evaluation to be carried out in line with management requirements.

There are four ways in which the project could be accelerated if necessary, these are:

(i) Activities B and C can be carried out concurrently, saving two weeks, at a cost of £1,000.

(ii) Activity H can be eliminated altogether but this will add one week to activity E at a cost of £300.

(iii) Activity F can be reduced by up to ten weeks at a cost of £500 per week.

(iv) Activity K can be reduced by three weeks but will involve the purchase of computer software costing £1,800.

· **Requirement for question 7**

(a) Draw a network diagram for the project, and identify the critical path and project cost based on the original estimates. *8*

(b) Prepare a report for the Director of Support Services in which you examine whether it will be possible to complete the project within the time and budget constraints given. The report should conclude by identifying the feasibility options for the management of the project's duration and cost. *12*

(20)