UNIVERSITY OF LONDON

GOLDSMITHS COLLEGE

B. Sc. Examination 2010

BSC AND DIPLOMA IN COMPUTING AND INFORMATION SYSTEMS

IS51010A (CIS108)   Information systems: The Foundation of E-Business

Duration: 3 **hours**

Date and time:

There are six questions on the paper. Please answer four questions. Full marks will be awarded for complete answers to four questions. Candidates must not attempt more than the required number of questions. Calculators are not allowed.

THIS EXAMINATION PAPER MUST NOT BE REMOVED FROM THE EXAMINATION ROOM

QUESTION 1

Scenario: Hotels for the Disabled

After forty years working as accountants, Mr Tom Davis and his wife Sue have both decided to change careers and open a chain of small hotels designed especially cater for people who are disabled. Each hotel will have a member of staff who will be responsible for ensuring the person staying in the room has all that they need.

Although they have not run a hotel before, Mr and Mrs Davis want the new hotels to be as technology-enabled as possible. They have read about the idea of having a digital firm and think if they can incorporate these ideas in to their new business then they can make a profit.

One of the important aspects of the new chain of small hotels is that they have good communication systems and technologies. Each morning Mr Tom Davis or his wife wants to be able to speak face to face with the manager at each hotel each day. Furthermore, in order to keep costs down, training of staff on issues concerning looking after disabled people will be done remotely wherever possible.

Mr and Mrs Davis believe that if they invest heavily in information systems they will be able to achieve significant improvements not only in how they operate but also how they interact with suppliers, make decisions and ultimately survive in a highly competitive market place.

As Mr and Mrs Davis are new to the hotel business it is also important that they learn from the data the business generates internally and from that which is available outside the business too. They want to purchase a system that will allow them to make use of the data they collect and turn that data into useful decision making and forecasting information.

For this question, you must use the information provided above in the scenario.

(a) Describe how Mr and Mrs Davis can create a chain of hotels that can be described as a digital firm. Identify five of the major relationships they would need to be technology enabled and describe three core business processes that would need to be accomplished through networks.

[**10 Marks**]

(b) Explain why Mr and Mrs Davis believe they are right to consider investing heavily in information systems and describe five strategic business objectives that could be met by making this investment.

[**5 Marks**]

(c) Recommend five communications technologies that Mr and Mrs Davis could invest in to ensure the greatest level of communication between the different hotels in the chain. Make sure your recommendations include technologies to enable Mr Tom Davis or his wife to be able to speak face to face with the manager at each hotel every day and also train staff remotely.

[**5 Marks**]

(d) Identify six kinds of data you think could be generated by Mr and Mrs Davis' business and describe the process of turning that data into useful decision making information. Also provide two recommendations as to what type of information system Mr and Mrs Davis should invest in and why.

[**5 Marks**]

QUESTION 2

(a) Mobile-Me is a company that manufactures mobile phones for several major retailers. Describe the main components of an information system Mobile-Me might use and detail six different environmental factors that Mobile-Me and its information system must interact with.

[**5 Marks**]

(b) Using your knowledge of businesses such as Mobile-Me, compare and contrast the organisational dimension of information systems with the technical and behavioural dimensions of information systems used by business in this industry. For the organisational level provide examples of hierarchy of authority, separation of business functions, business processes and business culture and politics.

[**10 Marks**]

(c) From a business perspective, information systems are part of a series of value-adding activities for acquiring, transforming, and distributing information that managers can use to improve decision making, enhance organizational performance, and, ultimately, increase firm profitability. Using your knowledge of businesses such as Mobile-Me, describe the primary and secondary value-adding activities in a value chain associated with the manufacture of mobile phones and also the industry value chain for the mobile phone manufacturing industry.

[**10 Marks**]

QUESTION 3

Scenario: CarLand

Established in 1908 Carland is the largest manufacturer of cars in Europe. Each one of Carland's fifteen manufacturing plants has over fifteen thousand workers directly contributing to the design, manufacturing and distribution of new cars and lorries.

Although Carland has very well organized production lines, it found that as it grew in size it was becoming less and less able to meet the demands from customers for customizations of cars on an individual basis.

One particular aspect of Carland that was different from plant to plant was the set of business processes used to design, manufacture and then distribute cars. This was a problem in that staff and managers moving between plants had to learn whole new ways and processes for working.

Workers at Carland also complained about either having too little or too much information. Furthermore, workers said that often the information they did receive was not at the right time and was not formatted correctly. As a result the information they did receive was not appropriate and therefore could not be used for decision making. This was particularly true of middle managers. To compensate for this lack of timely and appropriate information, managers generally took to "over ordering" as a method of reducing the risk of running out of component parts or materials for cars that were being produced.

Some managers have now taken to creating their own small information systems. However, many of these systems did not communicate with each other. These islands of information were causing further problems as the data each held was often inaccurate.

For this question, you must use the information provided above in the scenario.

(a) Define and describe a set of business process and related information systems that could be used by Carland in the manufacturing of a new car. In your answer you must detail the relationship between the business processes and the information systems you recommend and explain the role played by the information system in improving the efficiency of the business processes you defined.

[**10 Marks**]

(b) To address Carland's information problems, write a proposal for three new information systems that can address the needs of those working on the production line, middle management trying to make day to day decisions and those senior managers responsible for forecasting and planning. Explain why you have chosen a particular type of information system, what it will offer, and what benefits it will bring.

[**10 Marks**]

(c) Describe in detail three problems associated with different parts of the car plant having their own information systems and explain the problem of over ordering.

[**5 Marks**]

QUESTION 4

(a) Sitting Pretty is a chain of high street furniture shops that specialises in wooden tables and chairs. Furniture they sell comes from trees in Norway. Sitting Pretty is considering investing in a new information system to help them manage their relationships with suppliers. Describe the supply chain from source for one of Sitting Pretty's tables and explain how a supply chain management system can be used by Sitting Pretty to manage the firms relationship with suppliers'.

[**10 Marks**]

(b) Sitting Pretty is considering ways in which they can coordinate their business processes to increase customer service, get to know their customer needs better and increase customer satisfaction. Propose a type of information system they should consider using and describe how it would address the issues they wish to address.

[**5 Marks**]

(c) Although Sitting Pretty has a website, it is very basic and was built several years ago by the owner's son. The website has no dynamic content and is merely the company's sales brochure online. Sitting Pretty is planning to invest in a new website as well as intranet and extranet websites for interacting with customers and suppliers. For each type of website explain three ways in which it can be used to improve Sitting Pretty's business.

[**10 Marks**]

QUESTION 5

Scenario: Government of Jatombee

The government of Jatombee has been debating and considering ways it can address its ever increasing crime rate. Since 1980 crime has gone up roughly 10 percent a year.

Although more and more police officers have been trained and a national campaign has been running to make people crime aware, both measures seem to be having little effect.

In 2005 Jatombee doubled the prison sentences for crimes of burglary, theft and violence. Although initially this measure did reduce crime levels, they have begun to creep up again.

At a recent meeting of the government it was suggested that technology could be the answer. The following proposals were put to the government as a way to solve the rising crime problem.

All members of the public would have to carry a signal emitting card that would broadcast their exact location at all times. Anyone caught outside without a card would be presumed to be a criminal or at least up to no good.

All people must only use the government approved email system which can be accessed and read by government bodies and private companies and individuals who present a compelling reason such as a job application or if they believe a person is committing a crime against them.

High definition cameras should be installed throughout the country, 150 yards apart. All cameras will be fitted with night sensors and infrared so that they can record people both in the day and at night.

All phone calls, texts, emails, video messages and other electronic communications would be recorded. This data would be submitted to a profiling and nonobvious relationship awareness system.

All web searches made would also be submitted to a profiling and nonobvious relationship awareness system.

All purchases made over 20 pounds sterling would have to be made using a credit/debit card that would be linked directly to the national earnings, tax and insurance database. A persons' spending would be matched to their earnings and, if spending exceeded earnings, then a person would have to declare the reason why to the local police station.

For this question, you must use the information provided above in the scenario.

(a) The use of information systems to survey and control people raises major issues including information rights and obligations, property rights and obligations, accountability and control and quality of life. Describe five key technology trends that have enabled the government of Jatombee to feasibly consider implementing the proposals suggested.

(b) Describe how the government of Jatombee could use the colleted data via its monitoring of all phone calls, texts, emails, video messages and other electronic communications as part of a Non-Obvious Relationship Awareness (NORA) information system to determine criminal behaviour.

[**5 Marks**]

(c) Using the following five step process for ethical analysis, describe and explain the ethical dilemma raised by three of the proposals of the Government of Jatombee to reduce crime.

Ethical analysis: A five-step process

 (i) Identify and clearly describe the facts
 (ii) Define the conflict or dilemma and identify the higher-order values involved
(iii) Identify the stakeholders
(iv) Identify the options that you can reasonably take
 (v) Identify the potential consequences of your options

[**15 Marks**]

QUESTION 6

(a) Mr. Stevens owns a bicycle repair shop in central London. Customers bring their bicycles to him for servicing, repairs and upgrading. Mr. Stevens also sells secondhand bicycles to customers who want them. Until recently all administration concerned with servicing and selling of bicycles was done by Mr. Stevens in paper based accounting books. This approach has work well for many years, however with the recent rise in business such an approach to data management is no longer efficient or practical. A friend of Mr. Stevens has suggested that he investigate the possibly of using a database management system for the shop. Mr. Stevens has therefore hired you as a consultant to write the following short report.

Write a report of up to 500 words explaining how the problems of managing data using a traditional paper based file environment are solved by a relational database management system. Include in your answer a description of the capabilities and value of a database management system.

[**10 Marks**]

(b) Using your knowledge of relational database management systems design, do the following:

(i) Create a database consisting of tables for bicycles, customers, bicycles parts, suppliers, service requests and parts to be serviced. Each table must have primary keys and be normalized to 3rd normal form. Write an explanation of your database design.

[**6 Marks**]

(ii) Write an SQL statement to retrieve all the service requests for a customer called Jones. Write an explanation of your database design.

[**3 Marks**]

(iii) Write an SQL statement to retrieve the customer name and address and bicycle make and service request details for a customer called Evans. Write an explanation of your database design.

[**3 Marks**]

(iv) Write an SQL statement to retrieve just the customer name, and the name of the bicycle make for every bicycle in the repair shop. Write an explanation of your database design.

[**3 Marks**]