UNIVERSITY OF LONDON

GOLDSMITHS COLLEGE

B. Sc. Examination 2013

BSC AND DIPLOMA IN COMPUTING AND INFORMATION SYSTEMS

IS51010A   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

Potters Pottery Ltd

Potters Pottery Ltd is a medium sized company in the west of England which has been producing hand made designer crockery for the last 5 years. Its plate and cup designs have won many awards, and its distinctive look is now a recognised iconic brand in the UK.

Started from a back room in a house, the business now operates from a small industrial unit on the edge of town. Success has meant that the company now has to look at creating and using information systems to manage its business processes and day-to-day activities. The company needs a database management system to store information about customers, products and manufacturing. It needs a transaction processing system to help it manage the sales cycle and a communication system for interacting with suppliers and customers.

You have been asked to write a report to provide the management team at Potters Pottery Ltd with a better understanding of these important information systems technologies.

The answers you give should directly relate to the scenario above.

(a) Describe the relationship between Relational Database Systems, Entity Relationship Diagrams and the process of Normalisation.

[**5 Marks**]

(b) Describe how Transaction Processing Systems are used and explain the difference between real-time and batch.

[**5 Marks**]

(c) Describe five communication problems associated with using Email as a method of business communication.

[**10 Marks**]

(d) How can the problem of organisational inertia be addressed by changing an information system?

[**5 Marks**]

QUESTION 2

Strike at The Taylor Plant

The Taylor Plant produces leather products including bags and wallets for sale across the world. Although it has had a production line in operation for many years, it has recently been upgraded. The upgrade included the introduction of new systems that managed the timing patterns when workers intervened with the production line and a transfer of control from worker to machine. There have been many complaints about how the new production line is not centred around the way people work, but is designed the way machines operate.

Many workers also complained that the new production line has taken away the opportunity to use many skills that workers have built up over time. Workers no longer use their skills in manufacturing but instead monitor the manufacturing done by the production line. This de-skilling, as perceived by the workers, has led to many complaints. Another area of concern is that workers feel being tied to the rhythm of a production line is an unhealthy way to work. The loss of autonomy and decision making has led to great frustration.

The situation has got so bad that there is talk that if the operation of the new production line is not amended, then there may be a call for strike action.

In order to understand this situation and make appropriate changes, senior management has asked you to write a report answering the following questions. The answers you give should directly relate to the scenario above.

(a) Discuss the difference between machine-centred design and human-centred design.

[**5 Marks**]

(b) What are the characteristics of a healthy job, and how are information systems related to these characteristics?

[**5 Marks**]

(c) What is de-skilling? Explain whether or not information systems necessarily lead to de-skilling of their users.

[**5 Marks**]

(d) Describe the differences between centralized computing, personal computing, distributed computing, mobile computing and network computing.

[**10 Marks**]

QUESTION 3

Scenario: Always Spring Fashion

Established in 1950, Always Spring Fashion is the largest manufacturer of clothes in Europe. Each one of its fifteen factories manufacturing clothes has over a thousand workers directly contributing to the design, manufacturing and distribution of a large collection of clothes for men, women and children.

Although Always Spring Fashion has very well organised production lines, it found that as it grew in size it was becoming less and less able to meet the demands from shops for the varied types of clothes they wished to sell.

One particular aspect of Always Spring Fashion that was different from factory to factory was the set of business processes used to design, manufacture and then distribute clothes. This was a problem in that staff and managers moving between factories had to learn whole new ways and processes for working.

Workers at Always Spring Fashion 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 this information 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 clothes 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.

The answers you give should directly relate to the scenario above.

(a) Define and describe a set of business processes and related information systems that could be used by Always Spring Fashion in the manufacturing of a new suit for men. 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 systems in improving the efficiency of the business processes you defined.

[**10 Marks**]

(b) To address Always Spring Fashion's information sharing 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 factories and parts of the same factory having their own information systems and explain the problem of over ordering.

[**5 Marks**]

QUESTION 4

MobUnit tablet computers

MobUnit is a company that manufactures tablet computers for several major retailers across Europe. Its technologies are often rebranded by large companies such as Samsung and Apple. Its success has been down to its strong understanding of not only what constitutes an information system, but how information systems can be used by organisations across different functional areas.

At a recent management meeting, it has been decided to open a new plant in South East Asia. This plant will manufacture the next generation of mobile technologies which will focus on wearable computers. These computers will be embedded in wrist watches, headphones and glasses.

The senior management team would like to create a manual for South East Asia describing how information systems can be used and how they interact with the environment. The manual needs to explain how the new factory can use different information systems across its different functional areas. The manual needs to also explain how information systems can be used to improve the value chains of the manufacturing process of the next generation of mobile technologies.

The answers you give should directly relate to the scenario above.

(a) Describe the main components of an information system MobUnit might use and detail six different environmental factors that MobUnit and its information system must interact with.

[5 Marks]

(b) Using your knowledge of businesses such as MobUnit, 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 organisational performance, and, ultimately, increase firm profitability. Using your knowledge of businesses such as MobUnit, 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 5

<p align="center">**Scenario: Bokia Electronics**</p>

Bokia Electronics was once the leading supplier of mobile phones in the world. Its brand name was synonymous with the ever-growing ownership and users of mobile phones. Throughout the 1990s and early into the 2000s, it appeared to have no rivals.

However, in 2005 companies started to produce a new kind of phone - one which was connected to the internet, could do multiple tasks, and could be connected to other systems. At first Bokia thought this trend for creating multi-use phones would die out, and that customers did not require the ability to have a computer in their hand. However, they were wrong, and as their sales plummeted, Bokia's management board tried to react.

They have decided to create their own 'smart phone', which would be fully interoperable, run open-source software, and would work with a new laptop they would also produce. Both of these new technologies would be built in-house by a specialist team.

You have been hired as project manager for the new technology team, and have been asked to write a report answering the questions below.

The answers you give should directly relate to the scenario above.

(a) Explain why the continuing trends toward connectivity and interoperability provide opportunities for businesses to compete more effectively when using information systems.

<p align="right">**[5 Marks]**</p>

(b) Using laptop computers as an example, describe five main trends in the way they have evolved in the last 5 years.

<p align="right">**[5 Marks]**</p>

(c) Discuss why open systems can be viewed both as an opportunity and as a threat.

<p align="right">**[5 Marks]**</p>

(d) Use the four phases in building and maintaining systems to describe the project of writing a software program and identify challenges or problems that could take place at each phase.

<p align="right">**[5 Marks]**</p>

(e) Compare the roles of systems analyst and a project manager.

<p align="right">**[5 Marks]**</p>

QUESTION 6

<center>**Scenario: Portlands Bank**</center>

For the first time in its 150 year history, Portlands Bank has been broken into and a theft has taken place. This theft was not of physical products or money, but was a theft of bank details of thousands of its clients. This important information can be used to gain unauthorised access to accounts and to steal funds from these accounts.

Although the bank had several software-based security measures in place, all of these seemed to fail. It appears that a lack of understanding of the role of firewalls, detector systems and viruses has led to inappropriate deployment and use. In particular, it appears that a Trojan Horse virus was used to gain access to passwords and that a technique known as phishing allowed several new employees of the bank to give away important information to the thieves.

The bank believes that all staff should be more security conscious, and has asked you to write a manual detailing the subjects covered in the questions below. The answers you give should directly relate to the scenario above.

(a) Describe the roles of firewalls, intrusion detection systems, and antivirus software in promoting security.

<div align="right">**[15 Marks]**</div>

(b) Describe identity theft and expain how phishing is used to promote identity theft.

<div align="right">**[5 Marks]**</div>

(c) Describe the following forms of malware (for malicious software) virus, a worm, and a Trojan horse.

<div align="right">**[5 Marks]**</div>