



**BACHELOR OF FINANCIAL SERVICES (BFS)
END OF SEMESTER EXAMINATION
BBT 1101: INFORMATION SYSTEMS IN FINANCIAL SERVICES**

Date: Monday, 20th December 2021

Time: 2 Hours

Instructions

1. This examination consists of **FIVE** questions.
2. Answer **Question ONE (COMPULSORY)** and any other **TWO** questions.
3. Do not write on the question paper.

QUESTION 1

Desktop Virtualization Pays Off

Dutch company VocaLink designs and delivers domestic and international automated payments systems and ATM switching solutions. VocaLink's switching platform connects more than 65 000 automated teller machines (ATMs), the world's busiest network, while its payments platform processes more than 3.5 billion payments per year, totalling more than \$668 million daily in transactions. In addition, in Great Britain, more than 90% of salaries, 70% of bills, and almost all state benefits are processed through VocaLink. These are very sophisticated systems, and VocaLink partners with outsourcers, primarily in India, to develop the software code for its systems.

Outsourcing means contracting with others to perform some operations that could be done in-house by the company itself. As you can imagine, this creates a number of challenges, especially when the outsourcer is located half way around the world and there are cultural differences. But for VocaLink, the problem that arose while working with their outsourcer was systems integration. "Until about 18 months ago, our Indian developers would work on the code on their own servers," recalls IT director Nick Masterson-Jones. "They would then send that code back over to the UK, and we would have to spend time integrating it into our existing systems and testing those integrations." VocaLink turned to desktop virtualization to solve this issue. According to Masterson-Jones, "We wanted the developers in India to be able to write code as if it was being written here in the UK. That was the genesis of our virtualization project."

Using a combination of Citrix and VMware desktop virtualization software, combined with blade servers and a storage area network (SAN), VocaLink created 200 virtual desktops that could be used by its Indian developers. This allowed the Indian programmers to work directly on VocaLink's core systems, eliminating the steps of integration and testing from the development cycle. This improved agility and helped their two outsourcing partners, Perot Systems and Wipro, to better collaborate.

There are unexpected consequences of most software implementation projects, such as VocaLink's desktop virtualization project. According to Masterson-Jones, "We liked the way it took the capital cost out of deploying new projects. Previously, new projects always began with buying more servers." Using desktop virtualization, projects can now be started using existing unused capacity on the company's hardware. This led VocaLink to apply virtualization to its existing corporate systems, which centralized IT support, reducing problem resolution time.

While some employees were disinclined to part with their old machines, the new thin client devices that work with the virtualization model have become the norm. Security improved, too. Masterson-Jones explained: "You cannot cut-and-paste code out of the virtual machine. Now nothing leaves our data centre." VocaLink even used its virtualization to permit employees stranded at home by a snowstorm in 2009 to work by offering remote access to the virtual desktops. Ninety-eight percent of employees reported to work from their homes. Masterson-Jones also said: "It has been exciting to measure what we've been saving in energy costs. And (making IT energy efficient) may not bring competitive advantage, but it is something you should be doing anyway." So virtualization helps with green computing, too.

- a) What Business problems was VocaLink trying to solve? (6 marks)
- b) In terms of People, Organization and Technology, how did they solve the problem (9 marks)
- c) What type of information Technology did they use (5 marks)
- d) What was the benefit of this implementation? (6 marks)
- e) Explain how businesses can benefit from virtualization? (4 marks)

QUESTION 2

- a) An understanding of the nature of information is fundamental to the study of information systems. Using specific examples, you are required to:
 - i. Define an information system and describe the activities it performs. (5 marks)
 - ii. Describe the characteristics that will be present in information of high quality (5 marks)
 - iii. Describe how the value of information can be determined (3 marks)
- b) How do information systems support the business functions of finance and accounting? (7 marks)

QUESTION 3

- a) Explain the term "electronic data interchange". What is its relevant to companies now that the internet is widely used for data exchange? (4 marks)
- b) Describe the characteristics of DSS and explain how DSS differ from ESS (4 marks)
- c) How can computer-based information systems help an organization to achieve a strategic advantage over its competitors? (7 marks)
- d) Distinguish between buy-side and sell-side e-commerce and give an example of the application of each (5 marks)

QUESTION 4

- a) Define information technology (IT) infrastructure and describe each of its components. (8 marks)
- b) Define radio frequency identification (RFID), explain how it works and how it provides value to businesses. (4 marks)
- c) Consider a typical IBM-compatible personal computer, you are required to
 - i. Using relevant examples, describe some of the methods that can be used to assess the performance and quality of key components. (4 marks)
 - ii. In addition to the initial cost of the personal computer itself, a number of other expenses are likely to be incurred. Using relevant examples, provide an overview of these additional costs. (4 marks)

QUESTION 5

- a) Define a database management system (DBMS) and describe how it works and its benefits to organizations. (7 marks)
- b) Differentiate between responsibility, accountability, and liability in terms of ethical and social issues in information systems (9 marks)
- c) In the context of computing, differentiate the following terms “closed system” and “open system” (4 marks)