UNIVERSITY OF COLOMBO, SRI LANKA

Faculty of Management & Finance

Postgraduate & Mid-career Development Unit

Master of Business Administration (MBA)/MBA in Finance/MBA in Marketing/MBA in HRM

2015-2017 (Weekend) (Semester II Second Half) Examination – December 2016

MBA 540 – Management Information Systems

Three (03) Hours

Answer **Four (04)** questions in all, selecting **Two (02)** questions from each Part

Use two separate answer books for Part I and Part II

This paper has six (06) questions on four (04) printed pages

Part I

1. i. a. What is the main role of the Internet Corporation for Assigned Names and Numbers (**ICANN**) organization?

   b. What are the major issues that need to be considered when migrating from **IPv4** to **IPv6** protocol?

   (04 Marks)

   ii. a. Briefly explain how Sri Lankans get connected to the Internet.

   b. Briefly explain the **Domain Name Structure** of the Internet.

   (04 Marks)

   iii. a. What is the main role of the **Search Engine** in the context of World Wide Web?

   b. Briefly explain the process of **ranking** of web page documents by the search engines.

   .(08 Marks)

   iv. a. What is the difference between the **Type 1** and the **Type 2** hypervisors used in Virtualization platforms?

   b. Briefly, explain the three (3) popular **service models** that are being offered in **Cloud Computing**.

   c. Briefly, explain the difference between the **Public Cloud** and **Hybrid Cloud**.

   (09 Marks)

   (Total 25 Marks)

2. i. a. Why it is needed a **System Software** to run any kind of **Application Software**?

b. Identify the following software products as System Software or Application Software.

Software Product	System Software or Application Software?
Microsoft Windows 8	
Microsoft Power Point	
Adobe Photoshop	
Norton Antivirus	

(06 Marks)

ii. a. A software program can be written using a programming language like Java to perform a specific task of a real world problem. However, it is not possible to execute such a program directly on a computer. Comment on this statement with justifications.

b. What is meant by Software Piracy?

(06 Marks)

iii. a. Write down **two (02)** properties of **Shareware** software.

b. What is a Software License? Also name **one (01)** software type that comes **without** a software license.

c. Briefly explain **two (02)** advantages one can gain by using Free and Open Source Software (**FOSS**) as against proprietary software.

d. Briefly explain the **four (04) freedoms** specified by Richard M. Stallman under free and open source software.

(08 Marks)

iv. a. Briefly explain **two (2)** factors one should consider before applying **Artificial Neural Network** (ANN) based solution to a specific real world problem.

b. What is meant by **Big Data** in the context of data mining and machine learning?

(05 Marks)

(**Total 25 Marks**)

3. i. a. Briefly explain the process of converting a **cipher text** document to a **plain text** document.
    b. Given an encryption method, how can one argue that its strength of encryption capability is better than another method?

<div align="right">(06 Marks)</div>

ii. a. What would be the output of the algorithm, when you enter a data file (say a word document of ten pages in length) to a **message digest algorithm**?
    b. What is the difference between a **Message Digest** and a **Digital Signature**?

<div align="right">(06 Marks)</div>

iii. Consider the following notations that are related to public key encryption.

	Person A	*Person B*	*Person C*
Public Key	K^A_{Pub}	K^B_{Pub}	K^C_{Pub}
Private Key	K^A_{Pri}	K^B_{Pri}	K^C_{Pri}

    a. If person **A** encrypts a message (M1) using person **C**'s public key, is it possible to open that encrypted message by using any person's private key? Justify your answer.

    b. Write down the steps that are required to follow by person **C**, to send an **encrypted** message (M2) to person **A**. Note that the above encrypted message is **not** required to digitally sign.

    c. Write down **two (02)** components of a Digital Certificate.

<div align="right">(08 Marks)</div>

iv. Explain a business application where **3D printing technology** can provide a competitive advantage over existing traditional methods.

<div align="right">(05 Marks)</div>
<div align="right">**(Total 25 Marks)**</div>

Part II

4. i. Identify and discuss the major types of information systems that serve the management levels within a business.

<div align="right">(10 Marks)</div>

ii. Though the information technology is widely used in today's business organizations, there are arguments that productivity has not been enhanced as expected. Discuss this issue, with examples to illustrate your points.

<div align="right">(15 Marks)</div>
<div align="right">**(Total 25 Marks)**</div>

5. i. What is a Business process and explain its roles.

(10 Marks)

ii. It is said that information systems can change business organizations to gain competitive advantage. Discuss this claim with examples to illustrate your points.

(15 Marks)

(Total 25 Marks)

6. i. Describe the two different types of information systems that are used to support knowledge management in an organization.

(10 Marks)

ii. Define and distinguish between the terms organizational learning, tacit knowledge, best practices, and organizational memory. Which do you think would be most difficult to pin down in a knowledge system? Support your answer.

(15 Marks)

(Total 25 Marks)