THE OPEN UNIVERSITY OF SRI LANKA
Department of Civil Engineering
Postgraduate Diploma in Technology - Construction Management - Level 7

CEX7112 - Management Information Systems for the Construction Industry

FINAL EXAMINATION – 2013/2014

Time Allowed: Three Hours

Date: 2014 - 08 - 31 (Sunday) Time: 0930 - 1230 hrs

Answer any Four (04) questions.

Q1.

i.) Discuss in detail the reasons for the resurgence of interest in both corporate and academic spheres on MISs from the latter part of the 20th Century up to date.

(Marks 08)

ii.) Define and describe what a "System" is with distinguishing characteristics and relevance to management. Here, you should highlight by examples that definition of a system is not strictly unified and several interpretations are available.

(Marks 08)

iii.) The current trend of adopting or trying to implement modern MISs for practically all construction managemet operations may not result in efficiency and improvement in productivity comonsurate to the incurred expenditure for such systems. Within this background, develop an argument **against** installing a computer and communication based Management Information System for a construction contractor involved in a land reclamation (transportation & filling earth) project at a very remote location in the island.

(Marks 09)

Q2.

i.) Management Information Systems generally have a structure of **hierarchical nature**. Clearly describe and contrast the differences between the *three (03)* common hierarchical levels found in a Management Information System.

(Marks 08)

ii.) In the **"Development Process"** for a system, three (03) major stages are identified. Describe these stages with specific references to **Management Information System** development.

(Marks 08)

iii.) You a senior Engineer in the field of construction, has been requested by a university to deliver a guest lecture on the theme 'Management Information Systems and the Construction Industry' to Engineering undergraduates of the final year. In prelude to the forthcoming lecture, write down in point form the logical flow of your proposed lecture highlights.

(Marks 09)

Q3.

i.) Describe the salient features of Programming languages in line with the *four (04)* **categories** into which programming instructions are grouped.

(Marks 08)

ii.) In MIS development a popular method to adopt is known as **"Structured Programming".** Discuss the main features and the advantages offered by this method in MIS areana.

(Marks 08)

iii.) **"Systems Development Life Cycle Model"** is one of the most common techniques adopted in the development of "Systems" such as a Management Information Systems. Discuss the *four (04)* phases identified in this technique with emphasis on MIS development.

(Marks 09)

Q4.

i.) At the center of any modern MIS is the Personal Computer, which is the System-Human interface. Describe and discuss the main components that should be available in the **"System Unit"** of a micro-computer with multimedia, networking and communication facilities.

(Marks 08)

ii.) Describe the functions expected of an **"Operating System"** for a microcomputer and present an account of the development of operating systems to the sophistication of present day, indicating levels of utility and user-friendliness of these systems at each stage.

(Marks 08)

iii.) **"Capacities, efficiencies and reliability of data storage media for computer applications have progressed in a very rapid pace during the past decade".** In the light of this statement discuss the physical types, interface technologies and capacities of currently popular storage media for use with microcomputers.

(Marks 09)

Q5.

i.) Describe the historical development and working concept of **"Internet"**. What are the possibilities available for the construction industry to exploit the worldwide coverage of Internet coupled with Global Positioning Systems (GPS)?

(Marks 08)

ii.) Short range electronic communication under secure conditions have recently evoleved substantially to shift communication links between computing and communication devices from **Cables** to **Wire-less** technologies. Describe *two (02)* such popular wire-less technologies today with possible example of applications in the construction industry.

(Marks 08)

iii.) The electronic mail or the **e-mail** has now become common and well established necessity for communication. This system has several similarities and differences as compare with the regular postal mail system. Comprehensively discuss these similarities and differences.

(Marks 09)

Q6.

i.) Malicious programmes or in other words computer viruses are a major threat to computer and electronic communication based MISs. Describe a **"computer virus"** with reference to various forms in which they afflict computer systems and give a brief account of the way **"anti-virus"** programmes detect and clean viruses.

(Marks 08)

ii.) Discuss the conceptual meaning of **"Artificial Intelligence"** (AI) as applied to computer and information technology. Use a possible application of Artificial Intelligence in the construction industry to illustrate the future use of such technology.

(Marks 08)

iii.) Engineering applications often require data handling through multiple stages of calculations. One of the very versatile tools made available to the Engineer from the early days of computers is an application software called a **"Spread Sheet"**, which are designed to manipulate data on a two dimensional plane. After describing the salient features that should be present in such a software package, establish the steps involved in the development of a computer based tool for extracting quantities from Structural & Layout drawings for a housing project and preparing the Bill of Quantities (BOQ).

(Marks 09)