UNIVERSITY EXAMINATIONS: 2013/2014

EXAMINATION FOR THE MASTER OF SCIENCE IN INFORMATION

SYSTEMS MANAGEMENT

MISM 5204 INFORMATION SYSTEMS SECURITY

DATE: AUGUST, 2014   TIME: 2 HOURS

INSTRUCTIONS: Answer Question One and Any Other Two Questions

QUESTION ONE: [20 Marks]

a)   Using examples, write short notes on the following:

(i)	Confidentiality	[2 Marks]
(ii)	Integrity	[2 Marks]
(iii)	Availability	[2 Marks]
(iv)	Encryption	[2 Marks]
(iv)	Digital Certificates	[2 Marks]

b)   List any four indicators of successful risk management in an IT organization.   [4 Marks]

c)   Explain any three models enterprises can adopt for their wireless security.   [3 Marks]

d)   What is the importance of each one of the following policies in an organization?   [3 Marks]

(i)   Acceptable Use Policy

(ii)   Disposal and destruction policy

QUESTION TWO [15 MARKS]

a)   Describe the four main types of backup, explaining how each one of them is used.   [8 Marks]

b)   Risk management is the process of identifying risk, assessing risk, and taking steps to reduce
        risk to an acceptable level during each major phase of the system development life cycle.

Describe the major objectives of risk management? [7 Marks]

QUESTION THREE [15 MARKS]

a) Using examples for each category, differentiate between the three categories of cryptographic algorithms. [9 Marks]

b) Redundancy Planning helps in building excess capacity in order to protect against system failures within an IT organization. Disaster exercises are activities that are designed to test the effectiveness of a disaster recovery plan. Explain the objectives of these disaster exercises? [6 Marks]

QUESTION FOUR [15 MARKS]

Given are the security levels TOP SECRET, SECRET, CONFIDENTIAL and UNCLASSIFIED (ordered from highest to lowest) and two categories: Nuclear and Army. We have four subjects:

- the president has a TOP SECRET clearance for Nuclear and Army,

- the colonel has SECRET clearance for Army and Nuclear,

- the major has only CONFIDENTIAL clearance for Army, and

- the soldier has only UNCLASSIFIED clearance for Nuclear.

We also have some objects (documents):

- the army position at security level SECRET,

- the number of army units at security level CONFIDENTIAL,

- the number of nuclear units at security level CONFIDENTIAL,

- the costs of the nuclear program at security level UNCLASSIFIED,

- the costs of the army at security level UNCLASSIFIED, and

- the nuclear code at security level TOP SECRET.

Answer the following questions and give reasons for each one of your answers:

a) Can the president compute the overall defense costs (army + nuclear)? [2 Marks]

b) Can the major compute the total number of nuclear and army units? [2 Marks]

c) Can the colonel compute the total number of nuclear and army units? [2 Marks]

d) Can the colonel change the army position? [2 Marks]

e) Can the major change the nuclear code? [2 Marks]

f) Can the soldier change the nuclear code? [2 Marks]

g) What problem is raised by question f)? [3 Marks]