CORK INSTITUTE OF TECHNOLOGY
INSTITIÚID TEICNEOLAÍOCHTA CHORCAÍ

Semester 1 Repeat Examinations 2017/18

Module Title: Computer Security Principles

Module Code: **COMP 6035**

School: **Computer Science & Mathematics**

Programme Title: **B.Sc. (Hons) in IT Management Y2**
B.Sc. in Information Technology Y2
B.Sc. (Hons) in Software Development Y1
B.Sc. (Hons) in Software Development and Networking Y1
B.Sc. in Computing Y1
H.C. in Information Technology Support Y1

Programme Code: **KITMN_8_Y2**
KITSP_7_Y2
KSDEV_8_Y1
KDNET_8_Y1
KCOMP_7_Y1
KITSU_6_Y1

External Examiner(s): **Prof Gregory O'Hare**
Internal Examiner(s): **Dr. Vincent Emeakaroha, Dr. S. Abdi, Dr. P. Reynolds, Mr Roland Katona**

Instructions: Answer **Q1** (mandatory) and any **two** questions from the other three.
Q1 is worth 40 marks. All other questions are worth 30 marks each.

Duration: 2 hours

Sitting: Autumn 2018

Requirements for this examination:

Note to Candidates: Please check the Programme Title and the Module Title to ensure that you are attempting the correct exaination. If in doubt please contact an Invigilator.

Q1.

(a) What is a cyber-security attack? Describe in details active and passive attacks.

(8 marks)

(b) Describe three steps that can be taken to protect a home wireless network.

(7 marks)

(c) Explain four worm defense strategies. *(8 marks)*

(d) Explain Biometric authentication. What problems are associated with this type of authentication?

(5 marks)

(e) What are Cookies? Briefly describe how they could be used to track Internet users. *(6 marks)*

(f) What is symmetric cryptography? Give two examples of modern symmetric algorithms. Describe a problem inherent with using symmetric cryptography.

(6 marks)

Q2.

(a) Explain with the aid of an illustration cross site tracking.

(8 marks)

(b) What is a memory-resident virus? Describe their effects on a computer system.

(5 marks)

(c) How does social enginnering work? Describe two example scenarios.

(6 marks)

(d) Explain the concept of Ethical worm. Describe three problems associated with it.

(6 marks)

(e) What is traffic sniffing? How could it be countered? *(5 marks)*

Q3.

(a) What are malware obfuscation techniques? List and describe two types.

(6 marks)

(b) What is shoulder surfing? Describe three situations where it can be effectively applied. *(5 marks)*

(c) What is a rootkit? Name and explain the two primary functions of this class of malware. *(5 marks)*

(d) What is an authentication factor? List and describe three classes of authentication factors. Which type of authentication factor do you use as a student in CIT? *(8 marks)*

(e) What is a asymmetric cryptography? Describe a benefit and disadvantage compared with symmetric cryptography. Give two examples of assymentric encryption algorithms currently in use. *(6 marks)*

Q4.

(a) What is a virus payload? List and describe three types. *(8 marks)*

(b) There is no delete button on the web. With an example, explain the meaning of this saying. What are the security implications associated with this saying?

(6 marks)

(c) What is a two-factor authentication? Give and describe two examples.

(6 marks)

(d) What is a digital signature? Briefly describe its benefits and some problems associated with it. *(10 marks)*