



Professional Qualification in COMPUTER ENGINEERING Level 4 Diploma

UNIT 2 – COMPUTER SECURITY

Question 1

- a) **Explain** what is meant by the term 'buffer overflow'. (4 marks)
- b) **Compare** the risk of buffer overflow in a program written in an unmanaged language **against** a managed language. (12 marks)
- c) Referring to your answer to Question 1b, **recommend** which is **better** for protecting against a 'buffer overflow attack'. **Justify** your answer. (4 marks)

Question 2

- a) **Outline** the process of 'packet sniffing'. (4 marks)
- b) **Illustrate** a 'man-in-the-middle' attack. Use an example and diagrams to support your answer. (10 marks)
- c) Referring to your answer to Question 2b, **suggest how** a 'man-in-the-middle' attack can be avoided. **Justify** your answer. (6 marks)

Question 3

- a) **Explain** what is meant by the term 'attack vector'. (4 marks)
- b) **Compare and contrast** the advantages **and** disadvantages of the email attack vector. (12 marks)
- c) Referring to your answer to Question 3b, **suggest why** the email attack vector is popular. **Justify** your answer. (4 marks)

Question 4

- a) **Describe** the function of a firewall **and** a virus scanner. (4 marks)
- b) **Differentiate** between the benefits of using a firewall **and** the benefits of using a virus scanner. (12 marks)
- c) Referring to your answer to Question 4b, **suggest** which is the **most** relevant for preventing unauthorised access to a computer system. (4 marks)

Question 5

- a) **Explain** what is meant by the term 'social engineering'. (4 marks)
- b) **Distinguish** between the risks posed by phishing **and** worms. (8 marks)
- c) Referring to your answer to Question 5b, **recommend how** these risks can be minimised. (8 marks)