



Professional Qualification in COMPUTER ENGINEERING Level 4 Diploma

UNIT 4 – NETWORKING TECHNOLOGY

Question 1

(a) **Describe** the functions of framing and physical addressing of messages in the data link layer. (10 marks)

(b) **Explain** how packet collisions are avoided in a full duplex switched environment. (10 marks)

Question 2

(a) **Describe** how the establishment, management and termination of connections is handled in the session layer. (10 marks)

(b) **Compare** the features of the 7-layer OSI model with the TCP/IP model. (10 marks)

Question 3

(a) **Describe** how information is formatted and delivered across the application layers. (10 marks)

(b) **Describe**, using **ONE** example, the serialisation of complex data structures in the presentation layer. (10 marks)

Question 4

(a) **Explain** how to use software tools to confirm packets are correctly routed. (10 marks)

(b) **Discuss** the relative merits of filtering packets by IP address, domain names and specific words and phrases. (10 marks)

Question 5

Discuss the benefits and drawbacks to Internet users of using Network Address Translation (NAT) for system security compared with using a firewall. (20 marks)