



COMPUTER ENGINEERING

Level 4 Diploma

UNIT 4 – NETWORKING TECHNOLOGY

Question 1

- (a) Compare the function of the physical and data link network layers. (10 marks)
- (b) Analyse how packet collisions can be remedied. (10 marks)

Question 2

- (a) Explain the role of the session network layer, with reference to authentication and authorisation. (10 marks)
- (b) Review the differences between full-duplex and half-duplex connections. (10 marks)

Question 3

- (a) Explain how a firewall is configured. (10 marks)
- (b) State the network layer which handles the serialisation of data structures and explain at least ONE of its other functions. (10 marks)

Question 4

- (a) Contrast the function of the network and transport network layers. (10 marks)
- (b) Discuss the advantages of UDP over TCP. (10 marks)

Question 5

- (a) Explain how a network sniffer can be used to identify a computer using too much bandwidth. (10 marks)
- (b) Describe TWO tools which can be used to confirm network functionality and ensure appropriate packet correct routing. (10 marks)

Question 6

- (a) Explain the purpose of MAC addresses. (10 marks)
- (b) Discuss the implications of using NAT on an IPv6 network compared to an IPv4 network, with reference to any security precautions (e.g. firewalls) which could be required. (10 marks)

Question 7

- (a) Discuss the differences between ICMPv4 and ICMPv6. (10 marks)
- (b) Contrast, with the aid of diagrams, the OSI model and TCP/IP. (10 marks)