

CIT 723: OPERATING SYSTEM DESIGN AND PROGRAMMING

Instruction: Answer Question (1) (25 marks) and any other three questions each carrying 15 marks

Credit Units: 2

Time: 2½ hours

1. (a) Briefly explain what you understand by network architecture? (3 marks)
 - (b) What are protocols? (2 marks)
 - (c) Enumerate the three points to keep in mind when you think about protocols in a network environment (6 marks)
 - (d) State the benefits of networking. (5 marks)
 - e) What are network protocols? (2 marks)
 - f) State the file types that uses the following typical extensions: (3 marks)
 - i) .ps
 - ii) .mpg
 - iii) .dvi
 - iv) .jpg
 - v) .gif
 - vi) .pdf
 - g) State the advantages and disadvantages of Peer-to-peer network (4 marks)
- 2a) What do you understand by OSI reference model? Diagrammatically represent its layers. (5 marks)
 - b) Write short notes on the first three layers of the OSI layers (10 marks)
- 3a) Briefly describe how protocols work. (7 marks)
 - b) Enumerate the steps taken by the protocols at both the sending and receiving computer. (4 marks)
 - c) State any three advantages and one disadvantage of Linux operating system. (4 marks)
- 4a) Write short notes on the following:
 - i) User Datagram Protocol (UDP) (5 marks)
 - ii) Internetwork Packet Exchange and Sequenced Packet Exchange (IPX/SPX) (5 marks)
 - iii) Media Access Protocols (5 marks)
- 5) Describe the architecture of the Linux operating system enumerating its various components (15 marks)
- 6a) Explain CRC error checking (3 marks)
 - b) Write short notes on the following:
 - i) Protocol Stacks (2 marks)
 - ii) The Binding Process (4 marks)
 - c) Describe Network Load Balancing (6 marks)
7. (a) Write short notes on the following describing and stating their functions:
 - i) Internet Protocol (IP) (6 marks)
 - ii) Transmission control protocol (TCP). (6 marks)
 - b) State the advantages of Server-Based Network (3 marks)