NATIONAL OPEN UNIVERSITY OF NIGERIA
University Village, Plot 91, Cadastral Zone, Nnamdi Azikiwe Express Way, Jabi, Abuja
Faculty of Science

Course: CIT 311 – Computer Networks
Time Allowed: 3 Hours
Instructions: Answer Question 1 and three (4) other questions

Q1 a. What is a Network?   (2 marks)
    b. Explain the following network topologies.   (4½ marks)
        (i) Star topology
        (ii) Ring topology
        (iii) Bus topology
    c. What is the OSI reference model?   (2½ marks)
    d. List five layers of the OSI model.   (5 marks)

Q2 a. Compare and contrast analog and digital signals.   (3 marks)
    b. List three types of transmission media.   (3 marks)
    c. Discuss three differences between the OSI Reference Model
        and the TCP Reference model.   (6 marks)
    d. Mention two routing algorithms   (2 marks)

Q3.   a. List three routing protocols.   (3 marks)
    b. Describe the concept of congestion.   (3 marks)
    c. Define the following terms   (8 marks)
        (i) Bridges
        (ii) Routers
        (iii) Repeaters

(iii) Multiplexing

Q4.   a. Compare and contrast UDP and TCP transport protocols
(4 marks)
b. Give the full name of the following acronyms .
(8 marks)
      (i) DNS
      (ii)BGP
      (iii)SMPT
      (iv)WWW
c. List two characteristics of electronic mail.
(2 marks)

Q5.   a. Differentia between following devices.
      (i) Switches and Hubs   (3 marks)
      (ii) LAN and WAN   (3 marks)
      (iii) Half-Duplex and Full-Duplex   (3 marks)
      (iv) Routers and Repeaters   (3 marks)
b. Describe the functions of a modem   (2 marks)

Q6.   a. Discuss the following routing protocols.
      (i) RIP   .   (2 marks)
      (ii)EIGRP   (2 marks)
      (iii) OSPF   (2 marks)
b. Explain the term ISDN.   (3 marks)
c. List the two basic types of ISDN.   (2 marks)
d. Mention three advantages of ISDN.   (3 marks)

Q7.   a. Explain the term ATM.   (3 marks)   b. Discuss the two types of switching techniques.
(4 marks)

c, List two benefits of ATM. (3 marks)

d. Draw and explain the structure of an ATM cell. (4 marks)