BOWEN UNIVERSITY IWO, OSUN STATE
COLLEGE OF COMPUTING AND COMMUNICATION STUDIES
COMPUTER SCIENCE PROGRAMME
B. Sc. DEGREE SECOND SEMESTER EXAMINATION 2022/2023 SESSION
COURSE TITLE/CODE: COMPUTER NETWORKS AND COMMUNICATION CIT 406
COURSE CREDITS: 3   DATE: DURATION: 2 HOURS
INSTRUCTION: ANSWER ANY FOUR QUESTIONS IN ALL

QUESTION 1

a) Will there be a problem in a network where there are statically and dynamically assigned IP addresses, at the same time?   **5 marks**

b) Complete the table below: **12 marks**

	COMMUNICATION MEDIUM	Cable Specifications	Common Connectors
1	Coaxial cable		
2	Twisted pair cable		
3	Fiber Optic cable		

c) Write short note on the following:
  i.   Packet Internet Groper (PING)   **3 marks**
  ii.   Telnet   **3 marks**
  iii. File Transfer Protocol (FTP)   **2 marks**

QUESTION 2

a) Explain classifications of Computer Network by geographical coverage.   **12 marks**

b) Itemize four (4) functions of Network Operating System (NOS).   **4 marks**

c) You've just been hired as a network administrator at BOWEN University. On assumption of duty, your boss handed over to you the network map of the University to study and you discovered that the whole university community is on a single network (single sub network). Give your boss three (3) reasons why the university network must be segregated into different subnetwork.   **9 marks**

QUESTION 3

a) Succinctly explain what patch panel is used for and itemize its three importance.   **5 marks**

b) With a well labelled diagram, explain peer-to-peer and client-server networks. **8 marks**

c) Write short note on the following:
  i.   Hub   **3 marks**
  ii.   Bridge   **3 marks**
  iii. Router   **3 marks**
  iv.   Network Interface Card (NIC)   **3 marks**

QUESTION 4

a) With a well labelled diagram, explain the seven (7) layers of the Open System Interconnection (OSI) model. **12marks**

b) State four (4) advantages of OSI model. **6 marks**

c) With a well labeled diagram, describe Transmission Control Protocol (TCP) three-way handshake. **7 marks**

QUESTION 5

a) Define Computer Network. Hence, explain five (5) ways a computer network can be of help to your business. **12 marks**

b) Itemize three (3) merits and demerits of Computer Network. **6 marks**

c) Concisely explain the differences between Intranet, Extranet and Internet. **7 marks**

QUESTION 6

a) As a consultant for First Bank of Nigeria, you have been asked to update the IPv4 addressing scheme for the bank's regional office as well as for its two smaller branches. Nodes added within the last 2 years use DHCP (Dynamic Host Configuration Protocol), but some of those installed long ago still have statically assigned IP addresses. The network has grown from 24 workstations and three servers to 48 workstations and six servers in that time, all of which are running Windows operating systems. Describe what types of problems could result from having a mix of statically assigned and dynamically assigned addresses on the same network. **5 marks**

b) State four (4) reasons for implementing DHCP on a network. **8 marks**

c) You've just been hired as a network administrator at BOWEN University, describe three (3) Network Topologies you can employ to develop the Computer Laboratory. State the pros and cons of each topology. **12 marks**