COURSE CODE: CIT852

COURSE TITLE: DATA COMMUNICATION AND COMPUTER NETWORKS

CREDIT: 3 UNITS

TIME ALLOWED: 2½ HOURS

INSTRUCTIONS: ANSWER QUESTION 1 AND ANY OTHER FOUR (4) QUESTIONS

Q1.

(a) Outline four (4)basic goals that a typical computer network should satisfy. (4 marks)

(b) Distinguish between broadcast and point-to-point or switched networks. (4 marks)

(c) Define network topology and list four typical network topologies? (6 marks)

(d) Describe the four (4) layer of the TCP/IP Protocol Suite. (8 marks)

Q2.

(a) Explain the difference between Client/Server and Peer-to-peer architecture? (4 marks)

(b) Define the following terms

    I.   TCP/IP (2 marks)

    II.   UDP (2 marks)

    III. The Internet Group Management Protocol (IGMP) (2 marks)

    IV. Metropolitan Area Network (MAN) (2 marks)

Q3.

(a) Compare and contrast between Frequency Division Multiplexing vs Time Division Multiplexing (4 marks)

(b) Explain how Fibre Optics is used to transmit data? (2 marks)

(c) Mention two (2) ways by which optical fiber connector/splice loss can occur? (2 marks)

(d) Differentiate between Circuit Switched Network and Packet Switched Networks (4 marks)

Q4.

(a) Describe the operation of the Slow Start Algorithm? (2 marks)

(b) Compare Parallel and Serial transmission methods of transmitting data and mention the situation where Parallel transmission is a better choice as compared to serial transmission. (6 marks)