



Scott Christian UNIVERSITY

SCHOOL OF PROFESSIONAL STUDIES

BACHELOR OF INFORMATION COMMUNICATION TECHNOLOGY

UNIT CODE/NAME: BCT 312: DATA COMMUNICATIONS AND NETWORKS

September- December 2019/2020 End Semester Exam - Time: 2 Hours

Instructions: Answer Question ONE (Compulsory) and any other TWO questions.

QUESTION ONE

- a) Explain three features of computer networks (6 Marks)
- b) Discuss two advantages of distributed processing as experienced in the use of computer networks. (4 Marks)
- c) Explain three causes of network failure in any network setup. (6 Marks)
- d) Describe the function of PoE pass-through as used in network setups. (2 Marks)
- e) Explain three advantages of using Linux server operating system compared to Windows server operating system. (6 Marks)
- f) Explain each of the following data transmission modes as used in data communications.
 - i) Simplex mode (2 Marks)
 - ii) Half duplex mode (2 Marks)
 - iii) Duplex mode (2 Marks)

QUESTION TWO

- a) With the aid of examples in each case, elaborate on any two commands that could be used for troubleshooting in computer networks. (4 Marks)
- b) Outline any five factors that should be considered before selecting any transmission media for computer network setup. (5 Marks)
- c) Discuss three methods that can be used as network trouble shooting techniques. (6 Marks)

QUESTION THREE

- a) Explain any two benefits of implementing IPv6 over IPv4 in computer networks today. (4 Marks)
- b) Outline any five functions of protocol as used in data communications. (5 Marks)
- c) With the aid of a well labeled diagram, describe Wide Area Network as used in computer networks. (6 Marks)

QUESTION FOUR

- a) The OSI reference model consists of **seven** layers. Sketch the arrangement of the layers in their correct order. **(7 Marks)**
- b) Explain any three factors that should be considered when choosing a network topology for a new network design. **(6 Marks)**
- c) Joshua, a network administrator with Mactech Company Ltd would like to implement data security in a network. State two Network security techniques that he could implement. **(2 Marks)**

QUESTION FIVE

- a) Discuss three network vulnerabilities that can be experienced in Network security. **(6 Marks)**
- b) The government of Kenya is on a mission to connect all her government offices via fiber optic cable. Explain two advantages of using the type of cable compared to other types. **(4 Marks)**
- c) Wireless networks have become the backbone of network access for any organizations. However, this has come with a lot of security concerns. As a potential cyber security consultant, outline any five techniques that could be used to secure wireless networks. **(5 Marks)**