SCOTT CHRISTIAN UNIVERSITY
SCHOOL OF PROFESSIONAL STUDIES
BIT312: DATA COMMUNICATIONS AND NETWORKS
DCT103: NETWORK ESSENTIALS
END OF SEMESTER EXAMINATION, APRIL 2016

TIME: 2 HOURS   LECTURER: STEPHEN MUSILI

INSTRUCTIONS TO CANDIDATES
Attempt Question One (30 Marks) compulsory and any other two (40 Marks) questions from Section B

SECTION A

Question One

a. Explain the term Data Communications as used in computer networks   **(2 marks)**

b. Discuss four advantages of computer networks in the society.   **(8 marks)**

c. Outline two advantages of Top-down Network design.   **(2 marks)**

d. Explain three causes of network failure in any network setup.   **(6 causes)**

e. Define the term network design and planning.   **(2 marks)**

f. Explain three advantages of using Linux server operating system compared to Windows server operating system.   **(6 marks)**

g. Outline *four* challenges facing network professionals as a result of emerging trends in cyber space.   **(4 marks)**

SECTION B

Question two

a. Differentiate between a bridge and a router as used in computer networks.**(4 marks)**

b. Outline the use of each of the following network commands as used in Computer Networks.
   (i) Ping   **(2 marks)**
   (ii) Ipconfig   **(2 marks)**

(iii) Traceroute **(2 marks)**

    c. Differentiate between Static IP and Dynamic IP addresses as used in computer networks IP addressing. **(4 marks)**

    d. Discuss three methods that can be used as network trouble shooting techniques. **(6 marks)**

Question three

    a. With the aid of a diagram, describe a WAN as used in computer networks. **(4 marks)**

    b. During an ICT class, Wilson described the term browser. State any four types of browsers that he might have mentioned. **(4 marks)**

    c. Explain any two benefits of implementing IPv6 over IPv4 in computer networks today. **(4 marks)**

    d. Explain four functions of protocol as used in data communications. **(8 marks)**

Question four

    a. The OSI reference model consists of *seven* layers:

        (i) Sketch the arrangement of the layers in their correct order. **(7 marks)**

        (ii) State the function of the 1st, 3rd and 5th layers **(3 marks)**

    b. Joshua, a network administrator with Mactech Company Ltd would like to implement data security in a network. Explain *three* Network security techniques that he could implement. **(6 marks)**

    c. Malembezi has embarked on a plan to acquire a new network/server operating system for his newly configured network, Discuss *two* factors that he should consider when choosing a the System. **(4 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 three advantages of using the type of cable compared to other types. **(6 marks)**

c. Distinguish between Wi-Fi and Bluetooth as used in computer networks. **(4 marks)**

d. Mgaghah has decided to hire an ISP for his new company in Mlolongo. Outline *four* factors that he should consider when acquiring these services. **(4 marks)**

Wishing you success