MAASAI MARA UNIVERSITY

REGULAR UNIVERSITY EXAMINATIONS

2018/2019 ACADEMIC YEAR

THIRD YEAR SECOND SEMESTER

SCHOOL OF SCIENCE AND INFORMATION SCIENCES BACHELOR OF SCIENCE (COMPUTER SCIENCE)

COURSE CODE: COM 3203

COURSE TITLE: NETWORK DESIGN AND

ADMINISTRATION

INSTRUCTIONS TO CANDIDATES
(i) Answer Question **ONE** and any other TWO questions

*This paper consists of **4** printed pages. Please turn over.*

**SECTION A (30 Marks): Answer all questions from this section**

QUESTION 1
(a) What is a spanning tree?
    (2 Marks)
(b) State three Network Penetration Testing Tools   (3 Marks)
(c)   Give three tools that you can use to find errors in a network
                                                                    (3 Marks)
(d) State and explain three ways of building routes between nodes in large networks   (6 Marks)
(e)   What is the importance of Network Address Translation (NAT)
    (3 Marks)

(f) Distinguish between circuit switching and packet switching. In each case explain the strengths and weaknesses of each switching technique.
                                                                    (4 marks)
(g)   Given the network address 132.21.0.0, find the class, the block, and the range of the addresses
            (3 Marks)
(h) Explain the importance of penetration tests to an organization
    (3 Marks)
(i) Why is it that when the load exceeds the network capacity, delay tends to infinity?
    (3 Marks)

SECTION B (40 Marks): Answer any two questions from this section.

QUESTION 2

(a) The following diagram shows four switches (BBX1, BBX2, SWX1 and SWX2)
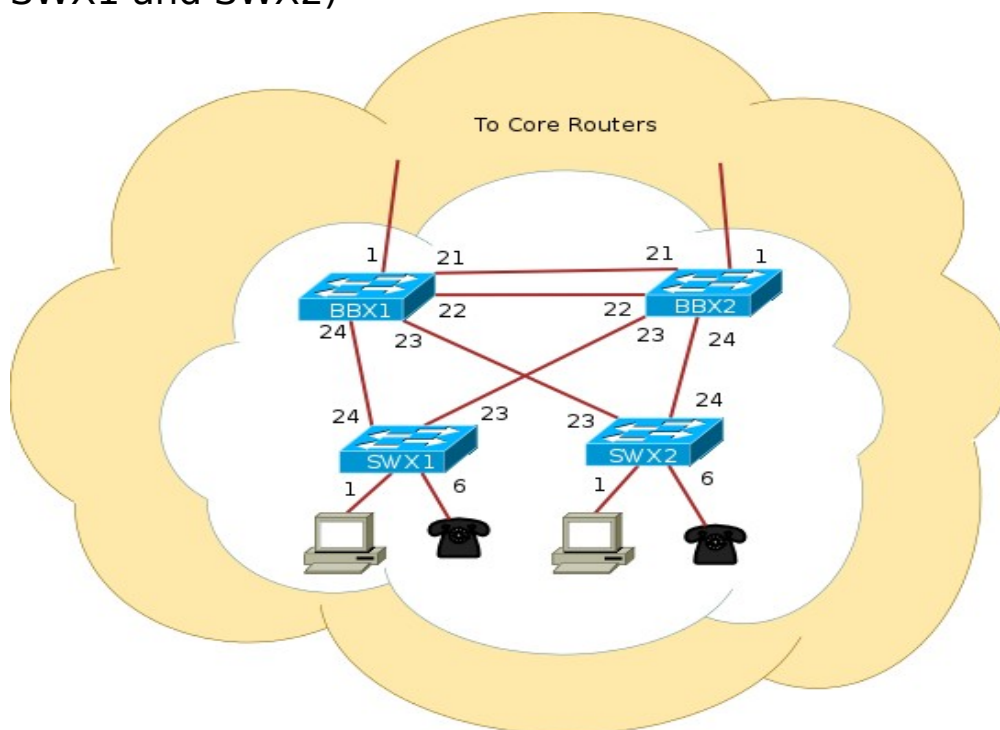
Write the commands to perform the following operations on each of the switches
   (10 Marks)
   i)   Clear all configurations on the switches
   ii) Name the switches
   iii) Configure Authentication
   iv) Assign each switch a different IP address
   v)   Configure Virtual LAN (VLAN)
(b) A good network design is modular and hierarchical, with a clear separation of functions explain
   (5 Marks)

(c) Give five reasons for using UNX/Linux for network operations
   (5 Marks)

QUESTION 3

(a) Explain the security measures that can be used to protect users on wireless Networks
   (6 Marks)
(b) In designing a LAN for an organization explain five most important things you'll put into consideration
               (5 Marks)
(c) Give five main features to consider when selecting a Network Operating System
   (5 Marks)
(d) List and explain the four main components of the basic UNIX systems architecture
   (4 Marks)

QUESTION 4

(a)   Give four disadvantages of installing a network
   (2 Marks)

(b)   Find the class of the following addresses
   (4 Marks)
        i)   158.223.1.108
        ii)   227.13.14.88
(c) Explain any three network protocols
   (6 Marks)
(d) Explain the steps used to design and implement a new network
   (8 Marks)

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