



FACULTY/COLLEGE	College of Business and Economics
SCHOOL	School of Consumer Intelligence and Information Systems
DEPARTMENT	Applied Information Systems
CAMPUS(ES)	APB
MODULE NAME	Communications Networks 2B
MODULE CODE	CMN02B1
SEMESTER	Second
ASSESSMENT OPPORTUNITY, MONTH AND YEAR	Supplementary Summative Assessment January 2020

ASSESSMENT DATE	8 January 2020	SESSION	08.00 – 11.00
ASSESSOR(S)	Dr Barnabas Gatsheni		
MODERATOR(S)	Mr. Tino Museba		
DURATION	3 hours (180 min)	TOTAL MARKS	100

NUMBER OF PAGES OF QUESTION PAPER (Including cover page)	3 PAGES
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INFORMATION/INSTRUCTIONS:

- This is a closed-book assessment.
- There are 4 questions. **Answer All questions**
- Read the questions carefully and answer only what is required.
- Number your answers clearly and correctly as per the question paper.
- Write neatly and legibly on both sides of the paper in the answer book, starting on the first page.

QUESTION 1

[25 MARKS]

- 1.1 What is the role of a link state packet (LSP) in communication networks? (2)
- 1.2 Compare latency with jitter in communication networks. (4)
- 1.3 Describe with the help of a diagram the token bucket technique and then state one of its advantages. (7)
- 1.4 Describe a virtual local area networks (VLAN) and then state 2 of its advantages in networking (6)
- 1.5 A packet has arrived with an M bit value of 1 and a fragmentation offset value of 0. Is this the first fragment, the last fragment or a middle fragment? Please explain how you arrived at your answer. (6)

QUESTION 2

[25 MARKS]

- 2.1 A network using CSMA/CD has a bandwidth of 100 kbps. If the maximum propagation time including the delays in the devices and ignoring the time needed to send a jamming signal) is 24 microseconds.
 - a) Calculate the minimum frame transmission time. (4)
 - b) Calculate the minimum size of the frame. (4)
- 2.2 Define a learning switch and then describe how a learning switch builds forwarding table. (5)
- 2.3 Operations involving management information are grouped into four areas.
 - i. Please name these areas four areas (4)
 - ii. Describe any two of the four areas your named in question i. (4)
- 2.4 List the activities that fall under general management and then describe one of them. (4)

QUESTION 3

[25 MARKS]

- 3.1 Compare a virtual circuit Identifier (VCI) with global addressing (GA). (3)
- 3.2 In network design, please name 4 network design constraints and then describe one of them. (5)
- 3.3 Compare priority queuing with the First – come –first served queueing (FIFOQ). (6)
- 3.4 Describe fully with the aid of a diagram the Weighted Fair Queuing (WFQ). (7)
- 3.5 Describe Time -division multiple access (TDMA) method. (4)

QUESTION 4

[25 MARKS]

- 4.1.1 Describe with the help of a diagram a firewall. (6)
- 4.2 With the help of fully labelled diagrams, describe any two of the three persistence methods. (8)
- 4.3 Describe fully the circuit switched network and how data transfer takes place switching. (6)
- 4.4 Stations in a slotted Aloha network send frames of size 600 bits at a rate of 1kbps. Calculate the vulnerable time for this network. (5)