



PAN AFRICA CHRISTIAN UNIVERSITY

(BACHELOR OF BUSINESS INFORMATION TECHNOLOGY)

END OF TERM EXAMINATION

DEPARTMENT: COMPUTING & INFORMATION TECHNOLOGY

COURSE CODE: BIT 308

CAMPUS: ROYSAMBU

COURSE TITLE: COMPUTER NETWORKS

EXAM DATE: THURSDAY, DATE (15TH APRIL 2021)

TIME: START 2.30PM – 5.30PM

INSTRUCTIONS

- This exam script has **TWO (2)** sections.
- Read all questions carefully before attempting.
- Answer All questions in Section **A** and any other THREE questions in Section **B**.
- None programmable calculators permitted
- Calculators on phones, tablets and computers are NOT permitted in Theory Papers

SECTION A

(Answer ALL questions in this section)

Question 1:

- a) You have been hired as a networking consultant at your local county government offices. On your first day in office, you realize that your colleagues are struggling with slow network speeds due to some outdated networking devices. Describe two active network devices that can considerably boost the network bandwidth. (4 marks)
- b) From part a) above, describe with relevant examples the two alternative transmission media classes that you may opt for as you try to upgrade the network at your place of work. Remember, you may need to consider connectivity to the sub-county offices that are in the area. (6 Marks)

SECTION B

(Answer any THREE (3) questions in this section)

Question 2:

- a) The Covid -19 pandemic has really displaced our ideas of conducting business in recent times and has somewhat given us a glimpse of new modalities that existed but we may need to cope with in future. Briefly explain the role of the internet in modern society with an emphasis on efficiency and adaptability. (4 Marks)
- b) The OSI model is used for reference purposes, thus, it acts as a template for reliable implementations. Describe one such implementation. (6 Marks)

Question 3:

- a) Give two advantages of the layered network approach. (2 Marks)
- b) As an entrepreneur in the ecommerce industry, you want to setup an office in your locality that would serve as the headquarter for future branches if the business will grow. Using appropriate diagrams, explain the design of four network topologies that you may use to provide network connectivity to your employees. (8 Marks)

Question 4:

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- a) Distinguish the following terminology in relation to network communication.
- i. Simplex vs Half duplex (2 Marks)
 - ii. LAN and WAN (2 Marks)
 - iii. TCP and UDP (2 Marks)
- b) The community-based organization in your area plans to procure licenses for three radio frequencies as they plan to set-up a local radio station. This idea is to serve the locals who are comprised of three ethnic groups. As a graduate member of the organization, enlighten the committee on the need for one license with regard to th multiplexing and how it can enable them achieve their goals.
(4 Marks)

Question 5:

- a) Over the years telephony has evolved from sending telegrams to recent mobile communications. Discuss this transition of technology in the mobile communication industry as it has evolved from the earl generations. (10 Marks)

Question 6:

- a) "The use of datagrams or packets in a network to transmit messages is unavoidable because they act as the defining constructs for the protocols in the transport layer. Therefore, the defining factor is the switching technologies for which they are employed." Elaborate. (10 Marks)

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