PAN AFRICA CHRISTIAN UNIVERSITY

Where Leaders are Made

UNIVERSITY EXAMINATIONS: 2025/2026

EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY

BSIT 212

NETWORK DESIGN AND ADMINISTRATION

END TERM EXAMINATION

PHYSICAL

EXAM DATE: **TUESDAY**

TIME: **11:00AM – 1:00PM**

DATE: APRIL, 2026 **TIME: 2 HOURS**

INSTRUCTIONS: Question One is Compulsory, Choose Three Other Questions

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Section One Compulsory 15 marks

Question One.

a) Propose THREE strategies that Safaricom as an organization can adopt to maintain a secure and efficiently managed network infrastructure. **[3 marks]**

b) Discuss **TWO** major network bottlenecks which must be addressed at the design stage to enhance a good network performance. **[4 marks]**

a) Illustrate as an upcoming Network Security expert, how you will use the following windows command line in network troubleshooting tools.

   i. Tracert **[2 marks]**

   ii. Netstat **[2 marks]**

b) Show how you would terminate Straight through UTP or STP copper cable using *ANSI/TIA/EIA-568-B,* standards. **[4 marks]**

Section Two Attempt any Three Questions.

Question Two.

a) Explain TWO key elements in network management and security. **[5marks]**

b) Explain TWO challenges in network management and security **[4 marks]**

c) For an effective network management and operations, A network administrator has to consider various elements of effective network security. Illustrate how you shall use the Network policy document to reinforce and manage Pan African Christian University Network **[6 marks]**

Question Three.

a) Describe FIVE networking tools used in structured cabling. **[5 marks]**

b) As an Expert of Network security expert, you have been supplied with the following network tools, Demonstrate the working and achievements you would obtain deploying them on your entire network.

   i. Mega Ping. **[5 marks]**

   ii. Wireshark **[5 marks]**

Question Four

a) Imagine you are tasked with designing a secure and efficient network infrastructure for a medium-sized business. Discuss FOUR key considerations you would take into account during the network design process. **[8 marks]**

b) Provide specific examples of technologies, protocols, and security measures that would contribute to the overall success of the network design.

[7 *marks]*

Question Five.

a) You are supposed to carry out a vulnerability assessment of a given network (x), The only tool available for you is the free trial version of **FastResolver.** Demonstrate your entire experimental process and key outcome that the tool will give out. **[10 marks]**

b) As a network administrator you are to use Remote desktop to support your users, Demonstrate the basics on how you will configure the same using Windows server platform. **[5 marks]**

Question Six.

c) Illustrate as an upcoming Network Security expert, how you will use Network Topolgy Mapper in your network design exercises. **[10 marks]**

d) Below is a screenshot obtained from a network troubleshooting exercise. Discuss and give the objectives of the experiment**.** **[5 marks]**

