

PAN AFRICA CHRISTIAN UNIVERSITY

BACHELORS OF INFORMATION COMMUNICATION TECHNOLOGY

END OF TERM EXAMINATION

DEPARTMENT: COMPUTING & INFORMATION TECHNOLOGY

COURSE CODE: BITBSIT205

CAMPUS: ROYSAMBU

COURSE TITLE: DATA COMMUNICATIONS & NETWORKS

EXAM DATE: Friday 11-2 PM

TIME:

INSTRUCTIONS

- This exam carries a total of SIX Questions of [10 Marks Each]
- Section One (I) is compulsory.
- Answer any 3(Three) Questions from Section Two (II)
- Read all questions carefully before attempting.

Section One Compulsory 10 marks

Question 1.

- a) As an Expert of Network security, you have been supplied with the Forensic tools listed below, Demonstrate the working and achievements you would obtain deploying them on your entire network.
- i. Mega Ping. **[2 marks]**
 - ii. Wireshark **[2 marks]**
- b) 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 following to reinforce and manage packets across any Network
- i. Policy Management. **[2 marks]**
 - ii. Network Identity. **[2 marks]**
 - iii. Perimeter security. **[2 marks]**
 - iv. Data Privacy. **[2 marks]**
- c) How would you carry out Port scanning as opposed to Network scanning. **[2 marks].**

Section Two Attempt any Three Questions.

Question 2.

- a) Horizon Technology has been awarded a tender to deploy a wireless network in County offices and its environs, Analyze FOUR major challenges associated with the selected type of Network infrastructure Implementations and how they can overcome them.
- [4 marks]**
- b) Analyze the appropriate remedies for the following network bottlenecks.
- i. Crosstalk. **[2 marks]**
 - ii. Attenuations. **[2 marks]**
- d) Discuss the following network characteristics are used in assessing most network operations.
- i. Performance **[1 mark]**
 - ii. Reliability. **[1 mark]**

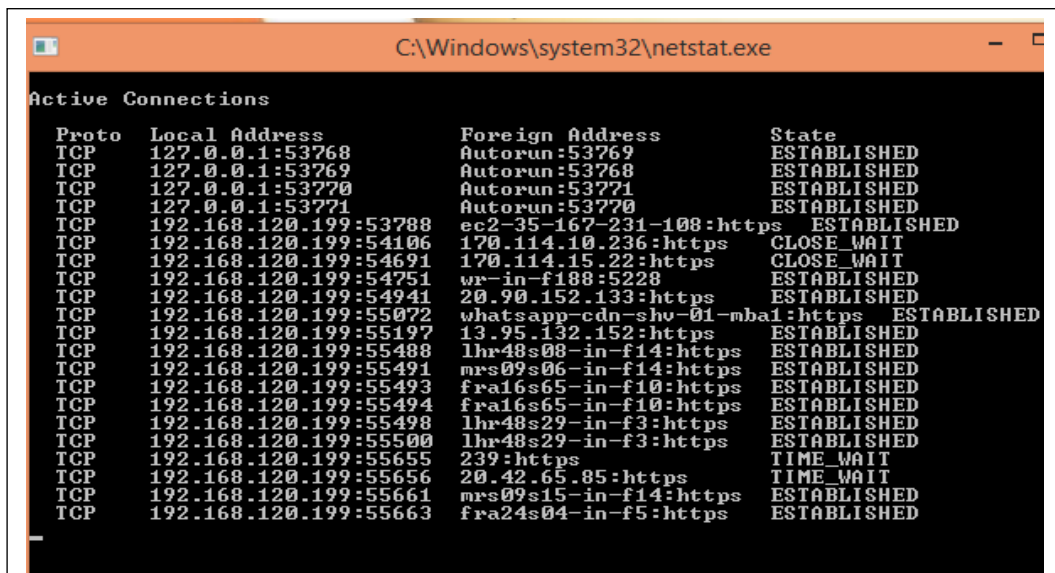
Question 3.

- a) Discuss giving example TWO data transmission modes. **[4 marks]**
- b) Illustrate as an upcoming Network Security expert, how you will use the following tools with the their outcome.
- i. Network topology mapper. **[4 marks]**
 - ii. Friendly Pinger. **[2 marks]**

Question 4.

a) Below is a screenshot obtained from a network troubleshooting exercise.

Discuss and give the objectives of the experiment. **[3 marks]**



The screenshot shows a Windows command prompt window titled "C:\Windows\system32\netstat.exe". The output displays a list of active network connections. The columns are: Proto, Local Address, Foreign Address, and State. The connections include several local loopback addresses (127.0.0.1) and various external IP addresses connected to different services like Autorun, ec2, whatsapp-cdn, and various 'in-f' addresses.

Proto	Local Address	Foreign Address	State
TCP	127.0.0.1:53768	Autorun:53769	ESTABLISHED
TCP	127.0.0.1:53769	Autorun:53768	ESTABLISHED
TCP	127.0.0.1:53770	Autorun:53771	ESTABLISHED
TCP	127.0.0.1:53771	Autorun:53770	ESTABLISHED
TCP	192.168.120.199:53788	ec2-35-167-231-108:https	ESTABLISHED
TCP	192.168.120.199:54106	170.114.10.236:https	CLOSE_WAIT
TCP	192.168.120.199:54691	170.114.15.22:https	CLOSE_WAIT
TCP	192.168.120.199:54751	wr-in-f188:5228	ESTABLISHED
TCP	192.168.120.199:54941	20.90.152.133:https	ESTABLISHED
TCP	192.168.120.199:55072	whatsapp-cdn-shv-01-mba1:https	ESTABLISHED
TCP	192.168.120.199:55197	13.95.132.152:https	ESTABLISHED
TCP	192.168.120.199:55488	lhr48s08-in-f14:https	ESTABLISHED
TCP	192.168.120.199:55491	mrs09s06-in-f14:https	ESTABLISHED
TCP	192.168.120.199:55493	fra16s65-in-f10:https	ESTABLISHED
TCP	192.168.120.199:55494	fra16s65-in-f10:https	ESTABLISHED
TCP	192.168.120.199:55498	lhr48s29-in-f3:https	ESTABLISHED
TCP	192.168.120.199:55500	lhr48s29-in-f3:https	ESTABLISHED
TCP	192.168.120.199:55655	239:https	TIME_WAIT
TCP	192.168.120.199:55656	20.42.65.85:https	TIME_WAIT
TCP	192.168.120.199:55661	mrs09s15-in-f14:https	ESTABLISHED
TCP	192.168.120.199:55663	fra24s04-in-f5:https	ESTABLISHED

c) Denial of service and Distributed Denial of service is one of the most common attacks experienced across any given network. With aid of a well labeled diagram show how an attacker can successfully handle and take control of a given Network.

[3 marks].

d) Musalia was to assigned tasks to troubleshoot student's lab network, identify the structured Steps to follow in troubleshooting the entire network.

[4 marks]

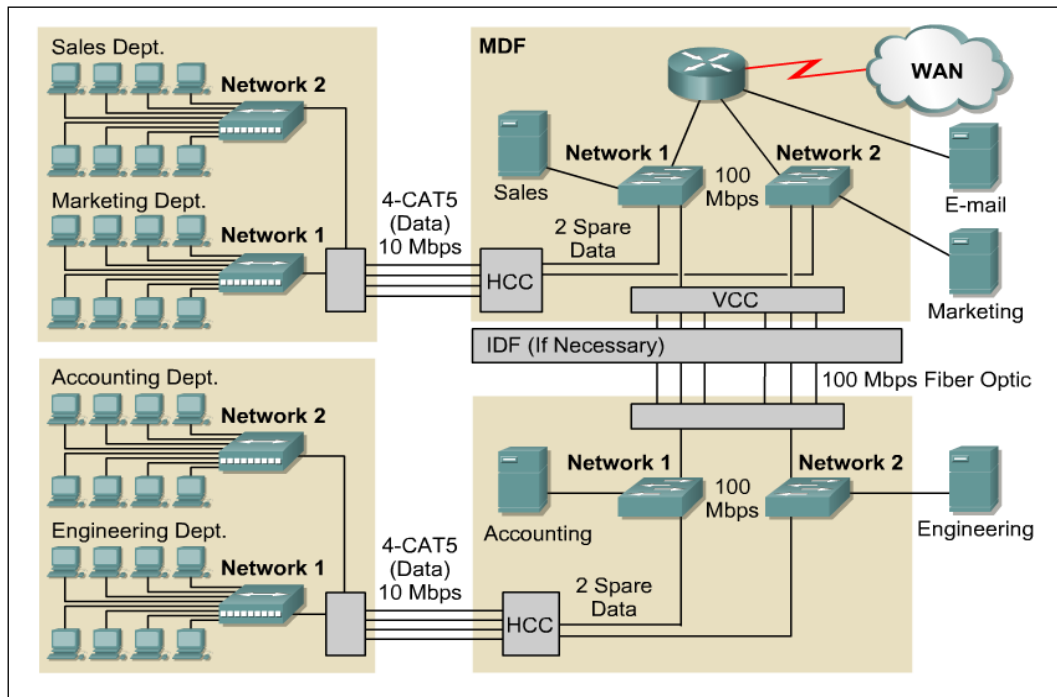
Question 5.

Discuss when and how you would use the following troubleshooting commands.

- | | |
|---------------------------------------|------------------|
| i. ifconfig. | [2 marks] |
| ii. ping (ip/domain/computer name) -t | [2 marks] |
| iii. nslookup | [2 marks] |
| iv. Netstat | [2 marks] |
| v. Tracert. | [2 marks] |

Question 6.

a) Study the diagram shown below then debate the concepts arising therein.



- | | |
|----------|------------------|
| i. MDF | [2 marks] |
| ii. HCC | [2 marks] |
| iii. VCC | [2 marks] |

b) With aid of a well labeled diagram explain how you would terminate Straight through UTP or STP copper cable using *ANSI/TIA/EIA-568-B*, standards.

[4 marks].

-END-

