



STRATHMORE UNIVERSITY  
SCHOOL OF COMPUTING & ENGINEERING SCIENCES  
BACHELOR OF SCIENCE IN COMPUTER NETWORKS AND CYBER SECURITY  
FINAL EXAMINATION  
CNS 3205: SERVER ADMINISTRATION

DATE: 7<sup>th</sup> December 2022

Time: 2 Hours

**Instructions**

1. This examination consists of **FIVE** questions.
2. Answer **Question 1 (COMPULSORY)** and any other **TWO** questions.

**Question 1 (30 Marks)**

- a) In your own words, describe two reasons why you will recommend Active directory instead of any other directory service to a typical Organization. **(4 Marks)**
- b) Using a diagram, illustrate a virtualization environment consisting of the Guest, host, shell, kernel and hardware. **(5 Marks)**
- c) Assuming that your server is configured to pick an IP address automatically via DHCP. The DHCP server is working properly. Describe any two possible causes of the server not picking an IP address. **(4 Marks)**
- d) A statement by Handy (2020) states that “Flash memory plays a huge role in enterprise storage. However, 16 years ago, SSDs barely existed.” Discuss any two causes of this. **(4 Marks)**
- e) Describe the Booting process. **(5 Marks)**
- f) Which two services would you recommend that they need to be started on server startup and why? **(4 Marks)**
- g) Complete the table **(4 Marks)**

Run Level	Purpose
1	
4	
5	
6	

**Question 2 (15 Marks)**

- a) You are required to set up a mail server, which three applications would you install and why? **(6 Marks)**

- b) Describe what you understand by RAID. Include a description of its benefits. **(3 Marks)**
- c) You have been asked to install clam antivirus. The software is available for download at <https://www.clamav.net/clamav.tar.gz> Describe the set of steps that you will perform in order to ensure that it is installed on your server. **(6 Marks)**

### **Question 3 (15 Marks)**

- a) Describe each of each of the following. **(10 Marks)**
- i. Active directory
  - ii. DHCP
  - iii. Samba
  - iv. Grub
  - v. Disk mirroring
- b) How do you change the system run level? **(3 Marks)**
- c) Write a command to identify the owner of the file "pingfile". Show the possible output of the command. **(2 Marks)**

### **Question 4 (15 Marks)**

- a) Describe two ways that you can secure Apache web server? **(4 Marks)**
- b) Describe two ways that you can secure you MySQL server? **(4 Marks)**
- c) Explain the meaning of the following command. **(4 Marks)**  
\$ ssh -p 440 -l intel 10.4.2.4
- d) You have been appointed as the Systems Administrator for a multinational organization. Explain using an illustration how you can apply transitive trust in any existing departmental domains. **(3 Marks)**

### **Question 5 (15 Marks)**

- a) Describe three security measures that you may recommend concerning packages. **(3 Marks)**
- b) Suppose you have to start some service at boot time. Up until now, you logged in after booting the system and started this service manually using a script named **deliver\_gift** in your home directory. What do you have to do in order to have the service start up automatically? **(3 Marks)**
- c) Within the Active Directory environment, what do forest, trees, and domain mean? **(3 Marks)**
- d) In your own opinion, what could be the personal characteristics of a person administering a system? **(3 Marks)**
- e) Make an alias **als** which actually executes **ls -la**. **(3 Marks)**