

KASNEB

CICT PART II SECTION 4

DATA COMMUNICATION AND COMPUTER NETWORKS - PRACTICAL

FRIDAY: 25 November 2016.

Time Allowed: 3 hours.

Answer ALL questions. Marks allocated to each question are shown at the end of the question.

You are provided with the following items:

1. One flash disk.
2. Printing materials.
3. Two standalone personal computers; Diop and Vand each running on Microsoft Windows XP or above. Each computer has an inbuilt modem and network adapter card.
4. Three CAT 5/6 Ethernet straight wired cables terminated with RJ-45.
5. One Ethernet switch.
6. A printer.
7. Details of Internet Service Provider (ISP).

Additional instructions:

- (a) Save your work (including typed answers to the theory questions where applicable) in the flash disk provided and in a folder bearing your registration number.
- (b) Work on each question should be saved in the subfolder contained in the folder created in instruction (a) above. The name of the subfolder should correspond to the question number.
- (c) Your registration number MUST appear as a header on every printout containing your work.
- (d) You must also indicate the number of the question answered on the header created in instruction (c) above.

Note: The information in instructions (a) to (d) above must be computer generated.

At the end of the examination duration, you should hand in to the invigilator(s):

- (i) The flash disk containing your work.
- (ii) ALL printed work.
- (iii) All unused printing paper(s).

QUESTION ONE

Create a word processor document named "Question 1". Use the word processor document to save the solutions and screenshots captured in the following questions:

- (a)
 - (i) State three services offered by a router to the internet network. (3 marks)
 - (ii) Indicate two reasons why a repeater is employed in a network. (2 marks)
 - (iii) State the open system interconnection (OSI) model layer in which a repeater operates. (1 mark)
- (b) Set up your network using the equipment provided.

Configure your computers with the following details.

	Diop	Vand
IP address	192.168.100.5	192.168.100.10
Subnet mask	255.255.255.0	255.255.255.0
Default Gateway	192.168.100.5	192.168.100.5

Capture and save screen displays showing the above details for each of the computers. (4 marks)

- (c) Test your network connectivity, capture and save a screenshot showing that your two computers are communicating. (4 marks)

- (d) While in Diop use a DOS command to:
- (i) Display active transmission control protocol (TCP) connection and ports on which the computer is listening.
Capture the screenshot displaying the above. (3 marks)
 - (ii) Provide information about network latency and network loss at intermediate hops between the source and destination.
Capture and save this screen display.

Print Question 1 document.

(3 marks)

(Total: 20 marks)

QUESTION TWO

Create a word processor document named "Question 2" and use it to save the solutions and screenshots captured in the following questions:

- (a) Highlight two advantages of printer pooling. (2 marks)
- (b) Outline four common causes of network problems. (4 marks)
- (c) On Diop Computer, perform the following tasks:
 - (i) Create an administrator's account with the following details:

User name	-	Mojo
Description	-	Administrator
Password	-	A22dIImin33

 Capture and save screenshot displaying this account. (2 marks)
 - (ii) Create a new user's account with the following details:

User name	-	Geta
Description	-	Operator
Password	-	Tagen

 Allow the user to change password on the next log on.
 Capture and save screenshot displaying the above user account. (2 marks)
 - (iii) Make user "Geta" a member of network configuration operators group.
 Capture and save screenshots displaying how this task is accomplished. (3 marks)
- (d) Change the security options for Diop to:
 - Limit the amount of idle time required before suspending a session to be 10 minutes.
 - Prompt the user to change password before expiration to be three days.
 Capture and save screenshots displaying the steps you have taken. (3 marks)
- (e) Capture and save the screenshot displaying the new internet protocol (IP) security properties of Diop. (4 marks)

Print Question 2 document.

(Total: 20 marks)

QUESTION THREE

Create a word processor document named "Question 3". Use the word processor document to save the solutions and screenshots captured in the following questions:

- (a)
 - (i) Compare and contrast the internetworking devices "bridge" and "gateway". (4 marks)
 - (ii) Describe the term "token ring" as used in networking. (2 marks)
- (b) A firewall is a network security that monitors and controls the incoming and outgoing network traffic.

Required:

On computer Diop capture and save the screenshots displaying how to turn on the firewall.

(2 marks)

- (c) On computer Vand capture and save screenshots displaying how you would install a printer as a local device using default drivers. (4 marks)
- (d) On computer Diop, capture and save screenshots displaying the following:
- (i) Change of local area network (LAN) settings to allow available services. (2 marks)
 - (ii) The modem installed in the computer. (2 marks)
 - (iii) The address expression dialog box. (2 marks)
 - (iv) The “capture filter” dialog box. (2 marks)

Print Question 3 document.

(Total: 20 marks)

QUESTION FOUR

Create a word processor document named “Question 4”. Use the word processor document to save the solutions and screenshots captured in the following questions:

- (a) (i) Citing two events that may need auditing, explain the purpose of network audit policy. (4 marks)
- (ii) Capture and save the screenshot displaying the audit policy on computer Diop. (2 marks)
- (b) Capture and save screenshots displaying the steps you would take to turn off network discovery. (4 marks)
- (c) Create on the desktop, a folder in Vand called “Data 2016 com”.
- Capture and save a screenshot displaying this folder being shared with user Geta. (2 marks)
- (d) Capture and save screenshots displaying the steps you would take to give the following permissions to Backup operators group:
- Read and execute.
 - List folder content.
 - Read.
- (4 marks)
- (e) Using Vand:
- (i) Ensure the service remote desktop configuration is started. (2 marks)
 - (ii) Allow connections only from computers running remote desktop with network level authentication. (2 marks)

Capture and save screenshots displaying the results of the above tasks.

Save and print Question 4 document.

(Total: 20 marks)

QUESTION FIVE

Create a word processor document named Question 5. Use the word processor document to save the solutions and screenshots captured in the following questions:

- (a) (i) Explain the term “subnet”. (1 mark)
- (ii) State two benefits of subnetting. (2 marks)
- (b) Explain three challenges facing the application of internet of things (IoT). (3 marks)
- (c) Use the appropriate tool to show transmission control protocol (TCP) connection and its graph.
- Capture and save screenshots showing the above. (4 marks)
- (d) Capture and save screenshot of the print server advanced properties. (3 marks)
- (e) Capture and save screenshot of the tools available in system configuration. (2 marks)
- (f) Display all the events in the Microsoft Windows dynamic host configuration protocol (DHCP) - Client events/Admin.
- Capture and save screenshots showing all the steps followed to carry out this task. (5 marks)

Save and print “Question 5” document.

(Total: 20 marks)