



kasneb

CICT PART II SECTION 4

DATA COMMUNICATION AND COMPUTER NETWORKS - PRACTICAL

MONDAY: 30 November 2020.

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.
4. Three CAT 5/6 Ethernet straight through cables terminated with RJ-45.
5. One Ethernet switch.
6. A printer.

Additional instructions:

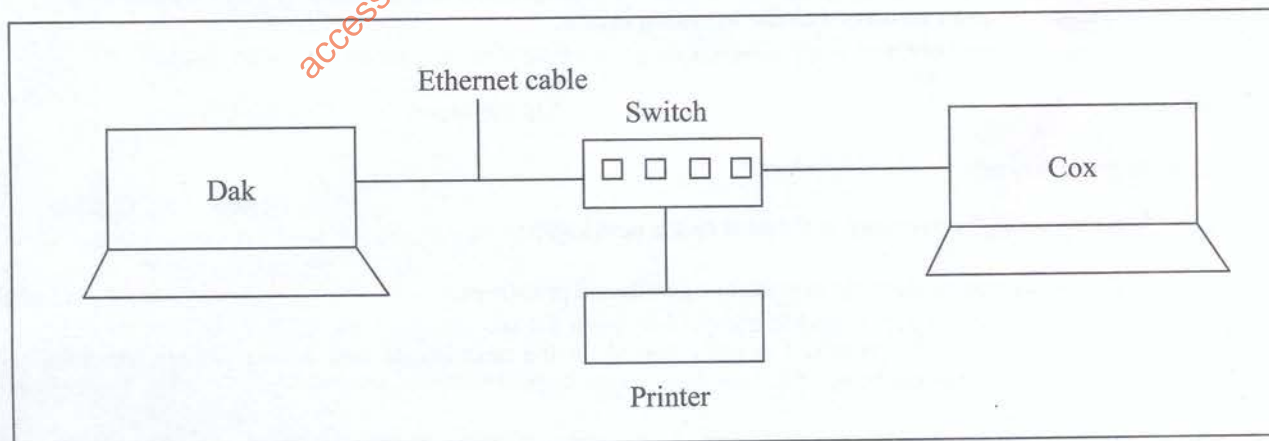
- (a) Save all your work (including typed answers to the theory questions where applicable) in the flash disk provided and in a folder bearing your registration number.
- (b) Work on each question should be saved in the subfolder contained in the folder created in instruction (a) above. The name of the 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).

Use the illustration of the computer network below to answer all the questions in this paper.



Dak and Cox refer to first and second computers respectively.

QUESTION ONE

Create a word processing document named "Question One" and use it to save your solutions to the questions below:-

- (a) (i) Set up the above network and configure the two computers with the given names. (2 marks)
- (ii) Configure Dak and Cox with the appropriate IP addresses, subnet mask and default gateway. (2 marks)
- (iii) Configure the computers to be in Peacock workgroup. (2 marks)

Capture a screenshot showing the configurations in (a) (i), (ii) and ((iii) above.

- (b) From Dak computer, use the appropriate commands to:
 - (i) Test your network connectivity to Cox computer.
Capture the screen showing the command used. (3 marks)
 - (ii) Display the media access control (MAC) address and list of network protocols associated with each address.
Capture an appropriate screenshot. (2 marks)
- (c) Capture a screenshot of the IP security properties of Cox computer. (3 marks)
- (d) Explain the term polling as used in data communication. (2 marks)
- (e) Differentiate between the roles of a network administrator and those of a system administrator. (4 marks)

Print "Question One" document.

(Total: 20 marks)

QUESTION TWO

Create a word processing document named "Question Two" and use it to save your solutions to the questions below:

- (a) From Dak computer, change password policy to:
 - * Enforce password history: 5
 - * Maximum password age: 10 days
 - * Maximum password length: 6 characters
 - * Password must meet complexity requirements: EnableCapture the final screen showing all the above settings. (4 marks)

- (b) From Dak computer, create two users with the following details:

	User 1	User 2
Name:	Bann	Ella
Password:	&B*a!n@n	?E!£!%a!

Change the properties of:

- (i) Bann to ensure the password is changed on the next logon.
Capture a screenshot showing user Bann's details and properties. (2 marks)
- (ii) Ella to ensure that the password is not changed on the next logon, user cannot change password and password never expires.
Capture a screenshot of Ella's details and properties. (3 marks)
- (c) Use an appropriate command to display the system information for Dak computer.
Capture a screenshot of the information displayed above. (3 marks)

- (d) From Cox computer, capture a screenshot of the printer ports available. (2 marks)
- (e) Evaluate two benefits of a virtual local area network (VLAN). (2 marks)
- (f) Differentiate between “internet of everything (IoE)” and “internet of things (IoT)”. (4 marks)
- Print “Question Two” document.

(Total: 20 marks)

QUESTION THREE

Create a word processor document named “Question Three” and use it to save your answers to questions (a) to (e) below:

- (a) Configure the private network profile for Dak computer to have the following settings:
- (i) Turn on network discovery. (2 marks)
 - (ii) Turn on file and printer sharing. (2 marks)
 - (iii) Turn on automatic setup of network connected services. (2 marks)
- Capture screenshot(s) showing the above configurations.
- (b) Display the following using Cox computer:
- (i) Drivers used for the network controller. (1 mark)
 - (ii) Event log system properties. (1 mark)
 - (iii) The audit for login events. (1 mark)
 - (iv) The application security file. (1 mark)
- Capture windows showing the above displays.
- (c) Add a virtual private network to your network with IP address: 192.168.1.2 and name it “CICT”.
- Ensure the network is able to use a smart card and allow other people to use this connection.
- Capture appropriate screenshots showing how you accomplished the above task. (4 marks)
- (d) Distinguish between “synchronous” and “asynchronous” data transmission modes. (4 marks)
- (e) John Kim got confused after discovering that his network was configured with two default gateways.
- Advise John Kim on the method a personal computer determines which gateway to use. (2 marks)
- Print “Question Three” document.

(Total: 20 marks)

QUESTION FOUR

Create a word processor document named “Question Four”. Use the word processor document to save your answers to questions (a) to (d) below:

- (a) On Dak’s computer, configure the following and capture corresponding screenshots:
- (i) Host network service to automatically start but with a delayed start. (2 marks)
 - (ii) Manually start the internet connection sharing (ICS). (2 marks)
 - (iii) Disable the Firewall MMC action pane. (2 marks)
 - (iv) Block the windows media player connection network sharing service. (2 marks)

- (b) From Cox computer, configure the computers' network list manager to allow users to change network location for unidentified networks and change network name for all networks.
Capture and save a screenshot showing the new configuration. (4 marks)
- (c) Using Dak computer, troubleshoot the DNS to show if DNS request and response packets are being sent and received.
Capture the appropriate screenshots. (2 marks)
- (d) (i) Explain the term "dark fiber". (1 mark)
(ii) Justify the need for dark fiber in an optic fiber cable. (2 marks)
(iii) Assess three reasons why information technology (IT) professionals presently prefer fiber optic cables to copper wires. (3 marks)
- Print "Question Four" document. (Total: 20 marks)

QUESTION FIVE

Create a word processing document called "Question Five" and use it to save your solutions to the questions below:

- (a) Using Cox computer, create a folder named "Drama" and in it save the following document as "Drama".

Drama on the Desktop

One time my drama class teacher had gone home sick. Consequently, we were put in a classroom with a movie to entertain us. In the process, an alarm went off. None of us were sure if it was the fire alarm or the lockdown alarm, so we all went out into the hall to check but there was no one out there. We headed back in and hid under our desks as was the lockdown procedure. Cut to an hour or so later when the teacher bursts in and nearly dies of relief because the school was on fire and we were the only students not accounted for! Half the faculty and fire department had been searching for us for ages. Literally, the whole school had been filled with smoke while we kept super safe under our wooden desks.

Required:

- (i) Capture a screenshot showing the saved file. (3 marks)
- (ii) Share Drama folder with the users: Bann and Ella.
Capture a screenshot showing how you accomplished the above task. (2 marks)
- (iii) Use the appropriate tool to display the share permissions for this folder.
Capture screenshots of the resulting display. (2 marks)
- (b) Use an appropriate command prompt utility to test whether your network can access kasneb website: www.kasneb.or.ke
Capture and save a screenshot of the resulting screen. (2 marks)
- (c) Capture a screenshot of a computer network statistics report from Cox computer. (2 marks)
- (d) From the command prompt, use the appropriate command to provide the current list of all tasks running on Dak computer.
Capture a screenshot showing the above tasks. (3 marks)
- (e) You intend to develop a solid backup strategy for your organisation.
Propose six guidelines that you would use for best backup practices. (6 marks)
- Print "Question Five" document. (Total: 20 marks)