



CICT PART II SECTION 4

DATA COMMUNICATION AND COMPUTER NETWORKS - PRACTICAL

THURSDAY: 28 November 2019.

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:

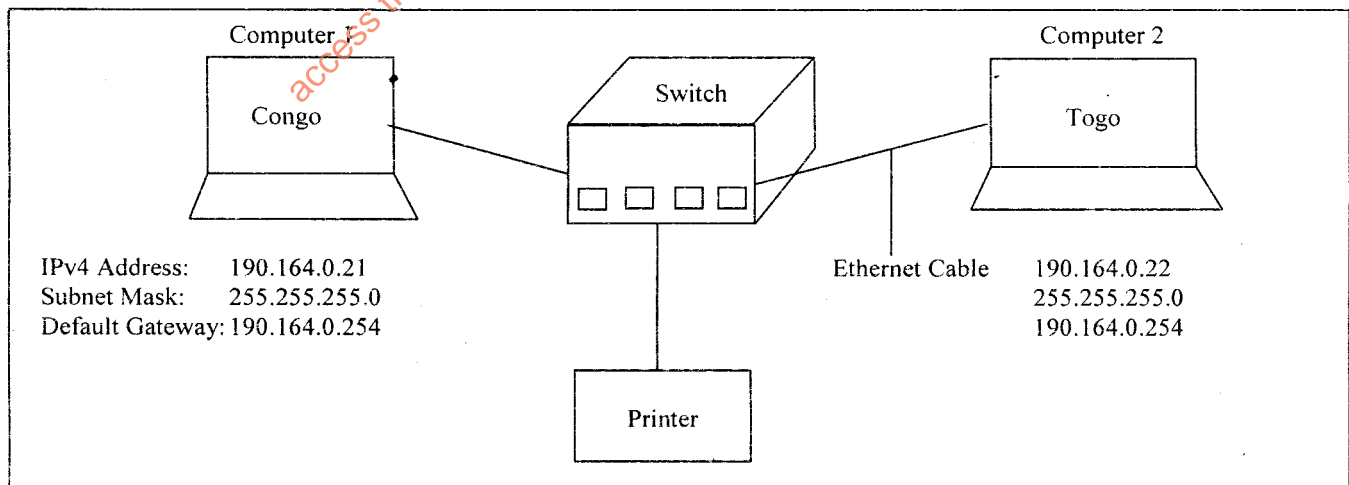
- (a) Save all your work (including typed answers to the theory questions where applicable) in the flash disk provided and in a folder bearing your registration number.
- (b) Work on each question should be saved in the subfolder contained in the folder created in instruction (a) above. The name of the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



### QUESTION ONE

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

- (a) Configure the computers with the given names as shown on the diagram above.  
Capture and save screenshots showing Congo and Togo computers. (2 marks)
- (b) Configure the IP address, subnet mask and default gateway for each of the computers.  
Capture a screenshot for each computer showing the IP address, subnet mask and default gateway. (4 marks)
- (c) Create a workgroup called "West Africa" consisting of the above computers.  
Capture a screenshot showing the workgroup. (2 marks)
- (d) Ensure the following options are enabled on both computers:
- (i) Link layer topology discovery mapper I/O driver. (2 marks)
  - (ii) Link layer topology discovery responder. (2 marks)
- Capture and save a screenshot showing the above options.
- (e) Using an appropriate tool, capture and save a graphical representation of West Africa workgroup. (2 marks)
- (f) The TCP/IP is a set of cooperating network protocols.  
Analyse three protocols that make up the TCP/IP suite. (6 marks)

Save and print "Question One" document.

**(Total: 20 marks)**

### QUESTION TWO

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

- (a) Use the appropriate commands from Congo computer to:
- (i) Test connectivity between the two computers. (2 marks)
  - (ii) Display network system summary information. (2 marks)
  - (iii) Show the media access control (MAC) address and list of network protocols associated with each address. (2 marks)
- Capture and save a screenshot in each case showing the results of the above tasks.

- (b) From Congo computer, create two user accounts as shown below:

	<b>User 1</b>	<b>User 2</b>
Username:	Timna	Manigold
Fullname:	Timothy Naina	Maning Golden
Password:	Timna	Mani

Capture a screenshot showing details of User 1. (2 marks)

- (c) While on Togo computer, create a new group with the following properties:

Name: Data Comm  
Description: All those doing Data Communication Practical.

Capture a screenshot showing how this was done. (2 marks)

- (d) Make the two users created in (b) above to be members of Data Comm Group.  
Capture a screenshot showing Data Comm Group properties. (2 marks)
- (e) Use Congo computer to change your local audit policies as follows:
- Audit Account logon event - Success only.
  - Audit logon events - success and failure.
  - Audit system events - success and failure.
- Capture a screenshot showing the changed policies as follows: (2 marks)
- (f) Radio Frequency Identification (RFID) has revolutionised the asset tracking practice for many companies, as it offers a quicker way to track multiple items over extended distances. However, this technology has its challenges.  
Assess three challenges in RFID technology. (6 marks)

Save and print "Question Two" document.

(Total: 20 marks)

### QUESTION THREE

Create "Question Three" word processor document and save the following screenshots and solutions.

- (a) Using Togo computer, set the number of TCP/IP printers that the 'Add printer' wizard will display to be 50 in number. (4 marks)
- (b) Using Congo computer's user rights assignment, add all authenticated user groups to have the following rights:
- (i) Access this computer from the network. (2 marks)
  - (ii) Add workstations to domain. (2 marks)
- Capture and save screenshots showing how the above tasks were accomplished.
- (c) Set the local drive in Togo computer to be accessible by the user in Congo computer. Using Congo computer, capture the screenshots showing the drive in Togo computer via shared documents window. (3 marks)
- (d) Enable Microsoft network server to disconnect all clients when logon hours expires in Togo computer. (3 marks)
- (e) Internet of Things (IoT) system allows users to achieve deeper automation, analysis and integration within a system.  
Analyse four technological characteristics favouring the implementation of IoT. (4 marks)
- (f) Highlight two disadvantages of cloud computing. (2 marks)

Save and print "Question Three" document.

(Total: 20 marks)

### QUESTION FOUR

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

- (a) From Togo computer use appropriate commands to:
- (i) Display all connections and listening ports. (2 marks)
  - (ii) Display Ethernet statistics. (2 marks)
- Capture and save screenshots displaying the above details.

- (b) From Congo computer:
- (i) Capture and save screenshots displaying the procedure undertaken by a network technician to view a network input/output and utilisation of the local host. (4 marks)
  - (ii) Use an appropriate command utility to display the router protocol details and interface alias of the network you are using.  
Capture and save a screenshot displaying the above details. (3 marks)
  - (iii) Prohibit installation and configuration of network bridge on the DNS domain network.  
Capture and save a screenshot showing your results. (3 marks)
- (c) Switches use various methods to deal with data as it arrives.  
Discuss three methods used by a switch. (6 marks)  
Save and print "Question Four" document. (Total: 20 marks)

**QUESTION FIVE**

Create a word processor document called "Question Five". Use it to save your solutions to the questions below:

- (a) Use Congo to capture screen shots showing how you would add a network printer. (4 marks)
- (b) Ensure your local drives protection settings are on. Use Congo computer to create a new restore point called Data Comm 2019.  
Capture appropriate screenshots showing how this task was done. (4 marks)
- (c) Configure Togo computer to be remotely controlled.  
Capture a screenshot showing how this was done. (3 marks)
- (d) From Congo computer use an appropriate command to display your network activity.  
Capture and save a screenshot showing the result of the above task. (3 marks)
- (e) Outline two reasons why a repeater is employed in a network. (2 marks)
- (f) Wireless Fidelity (WiFi) is an IEEE set of standards for wireless local area networks (WLANs).  
Evaluate two benefits and two challenges of WiFi. (4 marks)  
Save and print "Question Five" document. (Total: 20 marks)

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