

CICT PART II SECTION 4

DATA COMMUNICATION AND COMPUTER NETWORKS - PRACTICAL

FRIDAY: 3 September 2021.

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:

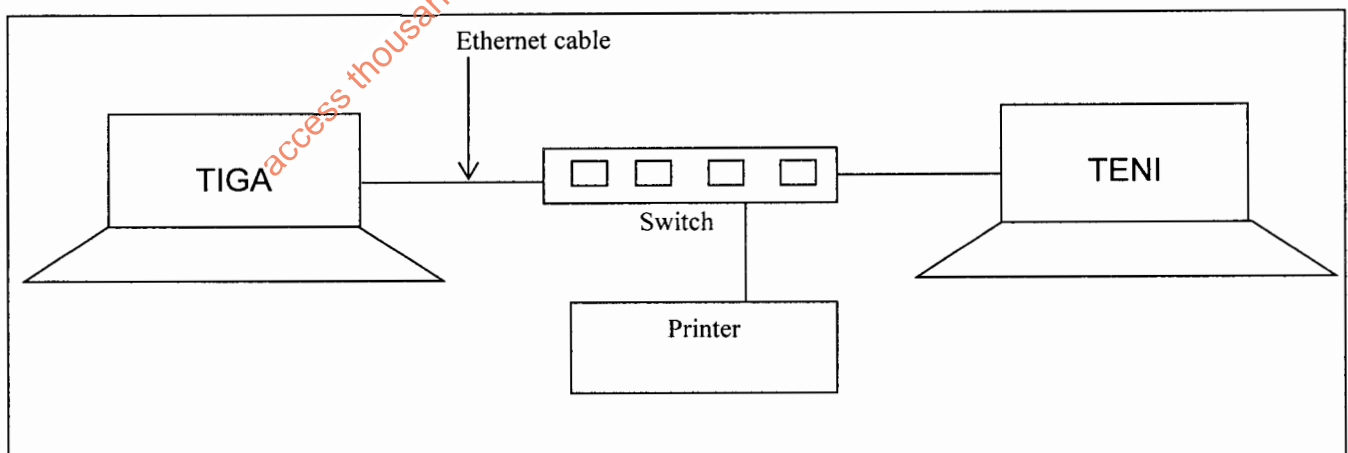
- (a) Save all your work (including typed answers to the theory questions where applicable) in the flash disk provided and in a folder bearing your registration number.
- (b) Work on each question should be saved in the subfolder contained in the folder created in instruction (a) above. The name of the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



Tiga and Teni refer to Computer 1 and Computer 2 respectively

### QUESTION ONE

Create a word processor document named “Question One” and use it to save your answers to this question.

- (a) Set up your network using the equipment provided and configure the computers using the following IPV4 addresses:

	<b>TIGA</b>	<b>TENI</b>
IP Address	: 192.168.60.1	192.168.60.2
Subnet mask	: 255.255.255.0	255.255.255.0
Default gateway	: 192.168.60.254	192.168.60.254

Capture and save screenshots for each of the above configurations. (4 marks)

- (b) Test your network connectivity.

Capture a screenshot of the results. (3 marks)

- (c) From Tiga Computer, display the following:

(i) Statistics for all protocols. (1 mark)

(ii) Status for all interfaces. (1 mark)

(iii) Complete ARP cache. (1 mark)

(iv) Contents of DNS resolver cache. (1 mark)

- (d) Windows Management Instrumentation (WMI) is used to manage remote computers. From Tiga computer enable WMI requests.

Capture a screenshot of the above results. (3 marks)

- (e) Highlight two components of Software Defined Networking (SDN). (2 marks)

- (f) Distinguish between twisted pair and fiber optic cables using the following characteristics:

(i) Signal transmission. (2 marks)

(ii) Bandwidth. (2 marks)

Print Question One document.

**(Total: 20 marks)**

### QUESTION TWO

Create a word processor document called “Question Two” and use it to save your solutions to the questions below:

- (a) From Teni Computer, configure the account lockout policy in account policies to prevent brute force login attempts.

Capture a screenshot of the above configuration. (4 marks)

- (b) From Tiga Computer, use appropriate command utility to display the following:

(i) Loopback Network Adapter. (2 marks)

(ii) Multipoint Communication Port. (2 marks)

(iii) Appropriate Smart Card. (2 marks)

Capture a screenshot for the above results.

- (c) Use an appropriate command to send a message “Welcome !! Welcome !!” from Teni Computer to Tiga Computer .

Open the received message on Tiga and capture a screenshot of the resulting screen. (4 marks)

- (d) A local church communication system set up plan is underway. You have been consulted as a network specialist. Explain three drawbacks of adopting message switching in their system. (3 marks)

- (e) Examine three functions of the transport layer in the OSI model. (3 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 Tiga's DNS settings to:
- Preferred : 1 . 1 . 1 . 1  
Alternate : 1 . 0 . 0 . 1
- Capture appropriate screenshots showing how this task is done. (5 marks)
- (b) Capture a screenshot showing Tiga's display of:
- (i) Basic advanced settings. (3 marks)
- (ii) 3D settings. (2 marks)
- (c) From Teni computer, use appropriate command utility to display transport layer protocol with port numbers used to communicate with upper layer protocols. (4 marks)
- (d) With examples, distinguish between signals modulation and sign demodulation. (4 marks)
- (e) XYZ company has reached a consensus to adopt cloud computing to enable easy manipulation, configuration and access to online services.
- Analyse two benefits XYZ company could accrue as a result of adapting cloud computing. (2 marks)
- Print Question Three document.

**(Total: 20 marks)**

### QUESTION FOUR

Create a word processor document named "Question Four" and use it to save your answers to this question.

- (a) Using Tiga Computer,
- (i) Create a high privileged account with username = CICT, Password = QWer12 and a low privileged account with username = DICT with ABC123 password.
- Capture the screenshots showing the accounts with the above details. (3 marks)
- (ii) Set the DICT account password to expire after every 7 days.
- Capture a screenshot of the above settings. (2 marks)
- (b) Capture a screenshot showing the graph of your network activity. (2 marks)
- (c) Set Tiga Computer to automatically perform backups of personal files after every 30 minutes. Ensure that the copies are always maintained unless there is no more space available.
- Capture a screenshot of the above settings. (5 marks)
- (d) Use the appropriate command to trace the path to the host named Teni Computer from Tiga Computer.
- Capture a screenshot of the result. (2 marks)
- (e) Internet of everything (IoE) is expected to reinvent the business wheel in a big way.
- Evaluate the impact of IoE on:
- (i) Business process. (2 marks)
- (ii) Business model. (2 marks)
- (iii) Business moment. (2 marks)
- Print Question Four document.

**(Total: 20 marks)**

**QUESTION FIVE**

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

- (a) Using the following common troubleshooting symptoms, state the field to check from IPCONFIG command output.

No	Symptom	Field to check from IPCONFIG output
1.	User is unable to connect to any other system.	
2.	User is able to connect to another system on the same subnet but is not able to connect to a remote system.	
3.	User is unable to browse the internet.	
4.	User is unable to browse access remote subnets.	

(4 marks)

- (b) (i) Capture a screenshot showing all the drivers details connected to Tiga Computer. (3 marks)
- (ii) Using Tiga capture a screenshot showing the Com1 port settings. (3 marks)
- (c) Enable the network visibility of the default printer installed in Tiga.  
Capture the printer visibility on Teni. (4 marks)
- (d) Summarise two responsibilities of a network technician. (2 marks)
- (e) Analyse the relationship between:
- (i) Internet of things (IoT) and big data. (2 marks)
- (ii) Internet of things (IoT) and cloud computing. (2 marks)

Print Question Five document.

**(Total: 20 marks)**

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