kasneb

CICT PART II SECTION 4

DATA COMMUNICATION AND COMPUTER NETWORKS - PRACTICAL

FRIDAY: 25 May 2018.   **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; Gudo and Jeni as the first and the second computer respectively.
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).

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 your computers with the following IP addresses:

		Gudo	Jeni
IP address	:	192.162.50.1	192.162.50.2
Subnet mask	:	255.255.255.0	255.255.255.0
Default Gateway	:	192.162.50.1	192.162.50.1

Capture and save a screenshot for each of the above configurations.

(4 marks)

(b)   From Jeni computer, turn on the following:

(i)   Network discovery.   (1 mark)

(ii)   File and printer sharing.   (1 mark)

Capture and save a screenshot of the window depicting (i) and (ii) above after turning on.

(c)   Create a workgroup called "Data_Comm" consisting of the above two computers.

Capture and save a screenshot of the window showing "Data_Comm" workgroup.   (4 marks)

(d)   Using an appropriate utility:

    (i)   Test the connectivity of the two computers from Gudo.   (2 marks)

    (ii)   Flush out the DNS resolver cache from Jeni computer.   (2 marks)

    Capture and save screenshots of your results in (i) and (ii) above.

(e)   Using suitable diagrams, illustrate three characteristics of an analogue signal.   (6 marks)

Print "Question One" document.

(Total: 20 marks)

QUESTION TWO

Create a word document named "Question Two" and use it to save your solutions to questions (a) to (e) below:

(a)   Configure the proxy server settings for Jeni computer to use proxy address "www.google.com" with 8080 as the port for all the http, secure and FTP protocols. Jeni computer should however not use proxy for all addresses beginning with 192.

    Capture and save a screenshot of the above configuration.   (3 marks)

(b)   (i)   On Gudo computer, create a TCPv4 monitor with the following counters:

        -     Connection failures.
        -     Connections active.
        -     Connections established.
        -     Connections reset.
        -     Segments sent/sec

        Capture and save a screenshot of the steps taken to achieve the above task.   (3 marks)

    (ii)   Capture and save a screenshot showing the histogram for the above properties.   (3 marks)

(c)   Using Gudo computer, create an authentication exemption rule named "free access". The rule should only exempt Jeni computer and should only apply when Gudo computer is connected to a private network such as a home network.

    Capture and save screenshot(s) showing the procedure you followed to accomplish the above task.   (2 marks)

(d)   Set the timeout for LPT1 port transmission retry time for default printer on Jeni computer to be 60 seconds.

    Capture and save a screenshot showing the above settings.   (3 marks)

(e)   In relation to data communications, explain the meaning of the following terms:

    (i)   Flooding.   (2 marks)

    (ii)   Choke packet.   (2 marks)

    (iii)   Bandwidth.   (2 marks)

Print "Question Two" document.

(Total: 20 marks)

QUESTION THREE

Create a word processor document named "Question Three". Use the word processor document to capture and save your answers to questions (a) to (f) below:

(a)   Display the network adapter properties and the physical address of Jeni and Gudo computers.

    Capture and save screenshots showing details of the two computers.   (4 marks)

(b) Capture and save a screenshot showing how you would view and delete saved user names and passwords of connected applications and networks on Gudo computer. (4 marks)

(c) On Jeni computer, perform the following tasks:

(i) Prevent storage of passwords and credentials for network authentication. (3 marks)

(ii) Create a text file named "MyFile" with content of your own and encrypt it. (3 marks)

Capture and save a screenshot displaying the final window after completing each of the tasks above.

(d) Consider the table below:

Steps	Description
1	Ping remote server
2	Ping IP address of the local host.
3	Open DOS window and ping 127.0.0.1
4	Ping the default gateway (Router)

Required:
Explain the correct order of steps that a network technician would use to troubleshoot an IP address. (2 marks)

(e) You are a help desk employee in your organisation. A user has reported to you that he is unable to connect to the internet. You inquire from the user who confirms to you that the Ethernet cable is plugged into the wall socket but there does not appear to be any light at the connection to the computer system.

Suggest the most likely cause of the problem in the above scenario. (2 marks)

(f) Distinguish between MAC address and an IP address as used in computer networks. (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) (i) Using Jeni computer, create a folder named "Comm_Tech" and transfer the text file created in Question Three (c)(ii) above to this folder. (1 mark)

Using the backup tool and the flash disk provided:

(ii) Using an appropriate tool, backup the Comm_Tech folder and share the backup file to the network.

Capture and save a screenshot showing the backup file. (2 marks)

(iii) Restore the backup to Gudo computer via network access.

Capture and save screenshots showing the shared folder containing the backup file and restored file. (2 marks)

(b) Using the remote assistance tools, set the maximum amount of time invitations could remain open on Gudo computer to be six hours and only allow invitations from computers running Windows Vista and above.

Capture and save screenshots showing how you accomplished the above task. (2 marks)

(c) (i) Using the manual settings, add and install the first HP printer driver available to Jeni computer. Use the printer port LPT1. Allow the printer to be shared to the network using the name "virtual printer".

Capture and save a screenshot of the window showing "virtual printer". (3 marks)

(ii)   Display the installed printer on "devices and printers" window of Gudo computer.   (2 marks)

(iii)   On Gudo computer, capture and save the screenshot showing the advanced properties of the "virtual printer".
                                                                                                    (2 marks)

(d)   Analyse three differences between internet of things (IoT) and machine-to-machine communication.   (6 marks)

Print "Question Four" document.
                                                                                    (Total: 20 marks)

QUESTION FIVE

Create a word processor document named "Question Five". Use the word processor document to save your answers to questions (a) to (f) below:

(a)   On Gudo computer, add two standard users "Juan" and "Miguel". Create a group called "teamAdmins". Add the two users to the "teamAdmins" group.

         Capture and save screenshots of the steps taken to complete the task above.   (3 marks)

(b)   Promote the user "Juan" to become an administrator.

         Capture and save screenshots showing the step-by-step procedure for completing the above task.   (3 marks)

(c)   Configure Jeni computer to audit the logon events.

         Capture and save appropriate screenshot(s).   (2 marks)

(d)   (i)   On drive C on computer "Jeni", create a folder called "Allmembers". Share the folder with everyone with a read-only permission.   (2 marks)

         (ii)   Configure the folder created above to allow a maximum of five users to be connected simultaneously to the shared folder.   (2 marks)

                  Capture and save the screenshots for the procedure used to execute the above tasks.

(e)   Using a DNS server address of your own, capture and save a screenshot showing how you would manually connect Gudo computer to the internet.   (2 marks)

(f)   Define the following terminologies as used in data communication:

         (i)   Data transfer rate.   (2 marks)

         (ii)   Subnetting.   (2 marks)

         (iii)   Parity check.   (2 marks)

Print "Question Five" document.
                                                                                    (Total: 20 marks)