KASNEB

CICT PART II SECTION 4

DATA COMMUNICATION AND COMPUTER NETWORKS (PRACTICAL)

FRIDAY: 27 November 2015.   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 stand alone computers: PCA and PCB 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 through cables terminated with RJ - 45.
5.   One Ethernet switch.
6.   A printer.
7.   Details of Internet Service Provider (ISP).

Additional instructions:
(a)   Save all your work 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 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)   Using the two computers create a workgroup named "Masomo" and rename the computers as PCA and PCB.
       Capture and save the screenshots showing the steps you have taken in creating the workgroup and in renaming the computers.   (5 marks)

(b)   Configure your computers with the following settings:

	PCA	PCB
IPv4 address:	192.168.1.7	192.168.1.8
Subnet mask:	255.255.255.0	255.255.255.0
Default gateway:	192.168.1.7	192.168.1.7

Capture and save the screenshots showing the above configuration.   (4 marks)

(c)   Using the connection testing tool, perform a test to determine communication between the two computers.
       Capture and save your results.   (2 marks)

(d)   Set PCA to automatically backup copies of your files after every 10 minutes and maintain the copy until space is needed.
       Capture and save screenshots showing the settings.   (5 marks)

(e) Flora Kanini, a consultant in information communication technology designed a network that resulted with several kinds of communication problems. One problem was noted as frequently disconnecting and the other was portions of the network with low network connection.

Required:
(i) Advise Flora Kanini on two areas that could be causing these problems. (2 marks)

(ii) Suggest two guidelines which if followed could likely reduce occurrence of common network problems. (2 marks)

Print Question 1 document.

(Total: 20 marks)

QUESTION TWO
Create a word processor document named "Question 2". Use the word processor document to save the answers and screen shots captured in the following questions:

(a) Describe the term "fiber exhaustion". (4 marks)

(b) Capture and save screenshots explaining how you would make the local area network printer usable without necessarily using the sharing utility. (6 marks)

(c) The network created by PCA and PCB is communicating through a switch.
Establish the type of twisted pair cable that could have been prepared if PCA and PCB were to be directly connected without using the switch. (2 marks)

(d) The Internet of Things (IOT) is the network of physical objects embedded with electronics, software, sensors and connectivity.
With reference to the above statement, discuss how IOT could be applied to enhance human life. (8 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 screenshots captured in the following questions:

(a) Use an appropriate command to test the status of the network interface cards of PCA and PCB.
Capture and save screenshots displaying the results. (4 marks)

(b) The LAN created by PCA and PCB may be restricted by some network settings in sharing of files and other resources.

Required:
(i) Turn on network discovery and capture the screenshot. (2 marks)

(ii) Allow windows to manage homegroup connections and capture the screenshot. (2 marks)

(c) Connect PCA to the internet using the Internet Service Provider (ISP) settings provided. Configure PCB to access internet connection through PCA.
Capture the screenshots showing the procedures followed. (4 marks)

(d) Create a user account in PCA named "CICT" which will have all privileges in network settings and another account on PCB named "Datacomm" which will have no privileges in network settings.
Capture and save the screenshots showing the accounts created and procedures followed. (6 marks)

(e) Capture and save a screenshot showing the PCA network activity.

Print Question 3 document. (2 marks)

(Total: 20 marks)

QUESTION FOUR

Create a word processor document named "Question 4" and use it to save the answers to the following questions:

(a)   Explain the following terms:

   (i)   Amplitude.   (2 marks)

   (ii)   Connection oriented communication.   (2 marks)

(b)   Using PCA. set the account lockout duration to be 30 minutes. Capture and save the screenshots showing the steps you have taken.   (6 marks)

(c)   Your PCA is installed with "Sent to oneNoto" printer by default. Set the installable printer memory for the printer to be 16MB.
       Capture and save the screenshot showing the settings.   (4 marks)

(d)   On PCB, use an appropriate tool to perform the following tasks:

   (i)   Disable notification of download when complete.   (2 marks)

   (ii)   Enable client authentification.   (2 marks)

   (iii)   Disable the browser prompt before saving the password.   (2 marks)

   Capture and save a screenshot displaying the results of the above tasks in the word processor document named Question 4.

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 answers and screenshots captured from the following questions:

(a)   Describe two data transmission modes.   (4 marks)

(b)   For each of the following three applications, determine the suitable protocol to use between "User Datagram Protocol (UDP)" and "Transmission Control Protocol (TCP)".

   (i)   File transfer.   (1 mark)

   (ii)   Video streaming.   (1 mark)

   (iii)   An audio conference.   (1 mark)

   Save your work in Question 5 document.

(c)   Line coding in data signals can be divided into several broad categories.

   Explain two line encoding schemes. Save your work in Question 5 document.   (4 marks)

(d)   Using PCA settings, set your PC to use 192.168.1.1 address as the proxy server and 8080 as the port.

   Capture the screenshot showing the settings and save in Question 5 document.   (4 marks)

(e)   Set the authorisation policy change to be audited in the event of failure and success for PCA.
       Capture the screenshots showing the steps and save in Question 5 document.

Print Question 5 document.   (5 marks)
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