

KASNEB

CICT PART II SECTION 4

DATA COMMUNICATION AND COMPUTER NETWORKS (PRACTICAL)

FRIDAY: 27 May 2016.

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: PC1 and PC2 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 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 question answered on the header created in instruction (c) above.

Note: The information in instructions (a) to (d) above must be computer generated.

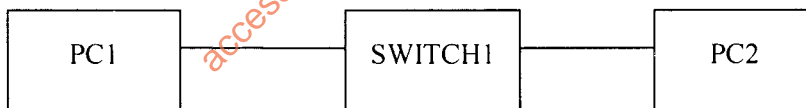
At the end of the examination duration you should hand in to the invigilator(s):

- (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 answers and screenshots captured in the following questions:

- (a) Use a block diagram to illustrate a simplified data communication model. (6 marks)
- (b) Use the appropriate networking equipment and the two computers to create a network with the following configurations:



	PC1	PC2
IP Address	172.16.16.1	172.16.16.2
Subnet Mask	255.255.0.0	255.255.0.0
Default gateway	172.16.16.1	172.16.16.1

(4 marks)

- (c) On PC2, use an appropriate tool to show that the two computers are communicating successfully. Capture and save a screenshot displaying the results. (4 marks)

- (d) Capture and save a screenshot displaying the internet protocol (IP) configurations of PC2. (4 marks)
- (e) Capture and save screenshots displaying the steps you would take when setting up a wireless network. (2 marks)

Print the word processor document "Question 1".

(Total: 20 marks)

QUESTION TWO

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

- (a) (i) Explain the term "channel capacity". (2 marks)
- (ii) Identify four factors which could be used to determine channel capacity. (4 marks)
- (b) Use PC1 to perform the following tasks:
- (i) Change the account lockout threshold to allow two invalid logon attempts. (2 marks)
- (ii) Change the audit policy to:
- Audit account logon events failure attempts.
 - Audit account management success attempts. (4 marks)
- (iii) Display the settings provided for in PC1 local group policy object. (2 marks)
- Capture and save a screenshot for each of the above tasks.
- (c) Use appropriate facilities to display the following on PC1:
- (i) Start up items and their details. (3 marks)
- (ii) Printer drivers of the printer connected to PC1. (3 marks)
- Capture and save screenshots displaying the above displays.

Print the word processor document "Question 2".

(Total: 20 marks)

QUESTION THREE

Create a word processor document named "Question 3". Use the word processor document to save the answers and screenshots captured in the following questions:

- (a) Describe the term "fibre curb". (2 marks)
- (b) Explain two ways in which the internet of things (IOT) is solving challenges of smart cities. (4 marks)
- (c) In one of your two computers, capture and save a screenshot displaying the details of the problems affecting windows performance. (3 marks)
- (d) Capture and save a screenshot displaying the details of component network protocol named "MSAFD TCP/IP V6". (3 marks)
- (e) Using firewall installed in one of your computers, capture and save a screenshot displaying the public profile. (2 marks)
- (f) Create a restore point named "Date of data communication practical" displaying the restore settings being configured to only restore previous versions of files.

Capture and save screenshots displaying the process of creating the above settings. (6 marks)

Print the word processor document "Question 3".

(Total: 20 marks)

QUESTION FOUR

Create a word processor document named "Question 4". Use the word processor document to save the answers and screenshots captured in the following questions:

- (a) Explain the following data communication terminologies:
- (i) Logical address. (2 marks)
 - (ii) Multiplexing. (2 marks)
 - (iii) Modulation. (2 marks)
- (b) (i) Assign PC1 and PC2 with computer names "Node 1" and Node 2" respectively and join them into a workgroup called "WING1".
- On Node 1, capture and save screenshots displaying the steps you have taken. (4 marks)
- (ii) Capture and save screenshots displaying the setting to allow a Node 1 user to be assisted remotely. Set the time for invitation to remain for 30 minutes only. (4 marks)
- (iii) Capture and save screenshot displaying the inbound rules and monitoring for:
- Active networks.
 - Firewall state.
 - General and login settings for Node 1. (4 marks)
- (iv) Capture and save screenshot showing processor performance, interrupt and processor time for Node 1. (2 marks)
- Print the word processor document "Question 4".

(Total: 20 marks)

QUESTION FIVE

Create a word processor document named "Question 5". Use the word processor document to save the answers to the following questions:

- (a) Explain the following as used in data communication and computer networking:
- (i) Virtual Reality. (2 marks)
 - (ii) RFID tag. (2 marks)
- (b) List two scenarios that might require you to use a crossover cable. (2 marks)
- (c) (i) Create a new user in Node 2 called "accountant 641" with a default password 123 that the user must change on logging on for the first time. The name and description should be similar to the user account.
- Capture and save screenshots displaying the steps you have taken. (4 marks)
- (ii) Capture and save screenshots showing how you would add the account created in (c)(i) above to the administrators group. (4 marks)
- (d) (i) Capture and save the screenshots that could show how Node 1 could connect to Node 2 using Remote Desktop connection. (4 marks)
- (ii) Capture and save screenshot showing how you would display network icon and notification setting to be displayed on the taskbar. (2 marks)

Print the word processor document "Question 5".

(Total: 20 marks)

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