kasneb

CICT PART II SECTION 4

DATA COMMUNICATION AND COMPUTER NETWORKS - PRACTICAL

FRIDAY: 1 December 2017.   **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: HOST-ONE and HOST-TWO 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.

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.

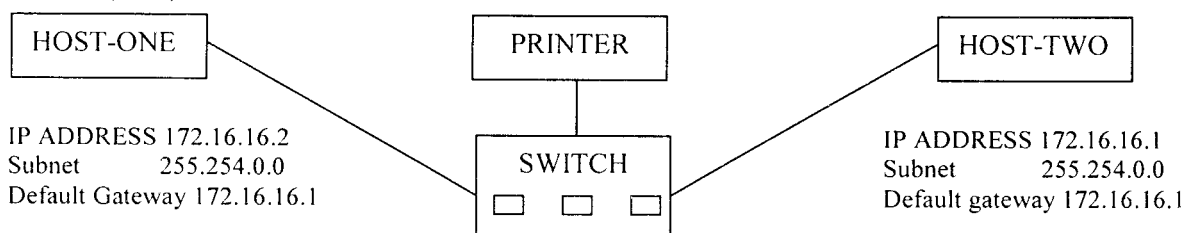Note: The information in instructions (a) to (d) above must be computer generated.

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". Use the word processor document to save the solutions and screenshots captured in the following questions:

(a)   Use the diagram below to guide you on the configurations for the two computers provided in creating a Local Area Network (LAN).

IP ADDRESS 172.16.16.2
Subnet   255.254.0.0
Default Gateway 172.16.16.1

IP ADDRESS 172.16.16.1
Subnet   255.254.0.0
Default gateway 172.16.16.1

Capture the screenshot displaying the configurations from each node.   (5 marks)

(b)   Use relevant commands to display the following:

   (i)   The connectivity status of the two nodes by verifying data packets are being distributed without errors.

(2 marks)

   (ii)   The MAC address of the personal computer (PC) from HOST-ONE node.   (2 marks)

   (iii)   Name of HOST-ONE node.   (1 mark)

   Capture and save screenshots displaying the information in (b) (i), (ii) and (iii) above.

(c)   Join the two computers into a workgroup called "hub254".

   Capture the screenshots displaying the workgroup computers and all the steps taken to achieve that.   (6 marks)

(d)   Outline two advantages and two disadvantages of IPv4 model.   (4 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 the solutions to the following questions:

(a)   Under the network settings, configure the password protected sharing to be OFF and public folder sharing to be ON in both computers. Capture and save the screenshots displaying the results.   (4 marks)

(b)   Configure the local intranet settings in HOST-ONE to enable access of data resources across domains.

   Capture and save screenshots displaying your result.   (4 marks)

(c)   When connected to the internet, some organisations may take advantage of the pop-up ads. However, some ads are useful depending on their source.

   Using HOST-ONE allow ads from the following addresses only:

   (i)   www.kasneb.or.ke.   (3 marks)

   (ii)   www.google.com   (3 marks)

   Capture and save a screenshot(s) showing the above configuration.

(d)   When setting up a local area network (LAN), the plan to connect the LAN to the internet should be considered.

   Required:
   (i)   Compare and contrast the use of dynamic and static addressing in LAN.   (4 marks)

   (ii)   Describe the device responsible for dynamic addressing in a network.   (2 marks)

Save and print Question Two document.

(Total: 20 marks)

QUESTION THREE
Create a word processor document named "Question Three" and use the word processor document to save the solutions to the questions below:

(a)   Every time a user logs onto the internet, the internet protocol (IP) address is different.

   Suggest two reasons why this is the case.   (2 marks)

(b)   (i)   Explain the term "denial of service".   (2 marks)

   (ii)   Examine why it is important for a business to have the necessary denial of service features in place. (2 marks)

(c)   On the network set up, capture and save a screenshot of the following:

      (i)   Network map.   (2 marks)

      (ii)   Details of the network device connected to it.   (2 marks)

(d)   Allow users to:

      (i)   Access HOST-TWO from the network.   (2 marks)

      (ii)   Logon through remote desktop services.   (2 marks)

(e)   Capture and save a screenshot of the most recent system diagnostic report statistics of HOST-TWO.   (3 marks)

(f)   While in HOST-TWO, capture and save a screenshot showing internet properties of untrusted certificate.   (3 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 screenshots captured in the following questions:

(a)   Analyse the table below, identify subnet mask and network address from the given IPv4 address:

IP address/prefix	Subnet Mask	Network Address
192.168.1.100/24	255.255.255.0	192.168.1.0
100.150.99.30/23	255.255.254.0	100.150.98.0
200.180.150.227/27		
172.31.45.254/24		
190.100.8.200/26		
130.16.117.77/20		

                                                  (4 marks)

(b)   On HOST-ONE capture and save screenshots displaying the following:

      (i)   Steps taken to configure the computer to receive and log events from another computer.   (3 marks)

      (ii)   Subscription source credentials for the computer.   (2 marks)

      (iii)   Minimised bandwidth for event delivery optimisation.   (2 marks)

      (iv)   HTTPs as the preferred protocol.   (1 mark)

(c)   On HOST-TWO, capture and save screenshots displaying the following:

      (i)   Steps taken to view the network protocols available from distributed component object model (DCOM).   (4 marks)

      (ii)   Steps undertaken to add tunnelling TCP/IP to be part of the default protocols of DCOM.   (2 marks)

      (iii)   Configure well known port ranges 0 – 1023 for firewall usage.   (2 marks)

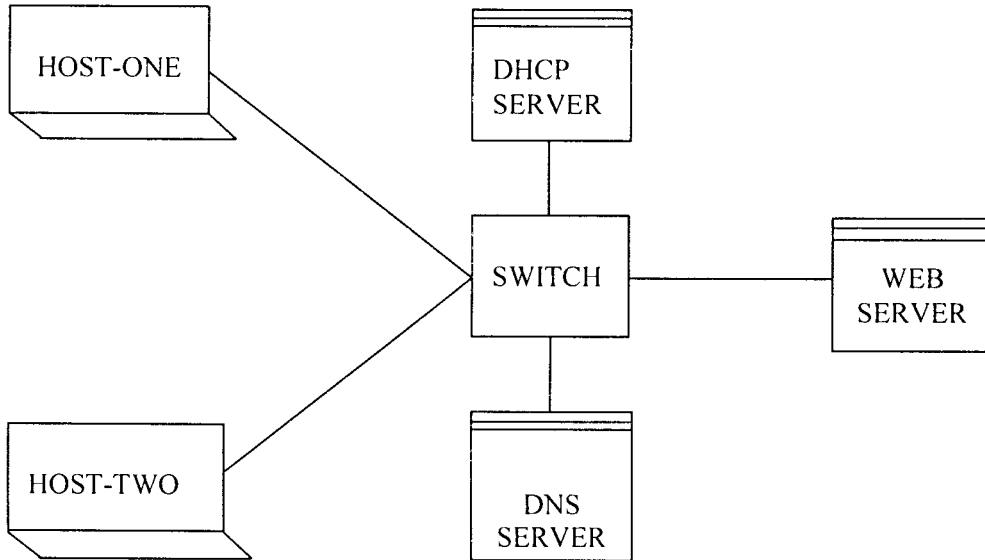Save and print "Question four" document.

(Total: 20 marks)

QUESTION FIVE
Create a word processor document named "Question five".

Use the word processor document to save solutions and screenshots captured in the following questions:

(a)   Analyse the illustration below:

Required:
(i)   Using appropriate examples, explain the relationship between DHCP, DNS and web server to a normal computer user.   (4 marks)

(ii)   Capture and save a screenshot on HOST-ONE, displaying the way to obtain internet protocol (IP) address automatically from DHCP server.   (2 marks)

(iii)   Capture and save a screenshot on HOST-TWO, demonstrating the configuration of the internet protocol (IP) address obtained in (a) (ii) above.   (2 marks)

(iv)   Capture and save a screenshot on HOST-TWO, showing appropriate internetworking device(s) used by the personal computer (PC) to obtain a web address stored from the web server.   (2 marks)

(b)   On HOST ONE, capture and save a screenshot displaying the following:

(i)   Permissions where users can change network name, location and icon.   (2 marks)

(ii)   Procedure a network technician could use to create a new network internet protocol (IP) policy on local computer.   (2 marks)

(c)   Discuss three pillars of Internet of everything stating the way its innovation could transform business.   (6 marks)

Save and print "Question five" document.

(Total: 20 marks)

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