

# Network Study Guide for CompTIA – Domain1

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## *Introduction*

This is the **first** in a four part series of study guides and practice tests designed to prepare you for the CompTIA Network+ certification tests. There are many different commercial study guides on the market today. The study guides designed here are based on sound education practices. For a work sheet or study guide to be an effective study tool, the student must put in some effort. These study guides are designed to follow the CompTIA test objectives. You as the student are to research the topics and compose a list of facts, examples, definitions, and explanations of the topics in the outline. By conducting your own research you will prepare for the test items. Commercially available study guides require no effort. All information is already provided in outline or short summery form, thus no real effort. You simply read and try to memorize the material. This is not an effective study method. Real study requires effort unless you are one of the very few truly gifted individuals. For the rest of us, the amount of effort put into the study the higher the results. This is the bases of these free study guides. You as the student are to research and make a set of notes correlated to each of the test topics in the study guide. You will find this a grate way to prepare for the CompTIA Network+ certification examination and it is absolutely free. Many study guides and practice test are very expensive. These tests and study guides are provided at no cost. You are free to download and use them and even share them with your friends and class mates. You are not permitted to duplicate them for the purpose of selling them or incorporating them into your own publication. If you would like to receive permission to incorporate these study guides and practice test into your web site, please feel free to create a link directly to [www.RMRoberts.com](http://www.RMRoberts.com).

## **Domain 1 - Media and Topologies**

The first Network+ certification domain accounts for 20% of the examination test items. For a test consisting of 85 questions, 20% would equal 17 items.

The media and topologies section requires a lot of memorization especially for the cable types and characteristics. For example you must be able to answer questions about 1000BASE-LX such as the core material, core size, data speed, maximum cable distance and typical application. As you can see, this type of item can make the questions on the examination very difficult. In contrast, a question about topology identification should not be very difficult.

Chapters 2, 3 and 4 of my **Network Fundamentals** book parallel the test objectives. Be sure to review these chapters and corresponding lab activities before taking the exam.

Additional online reference materials covering Domain 1 are listed below.

<http://www.techfest.com/networking/lan/ethernet5.htm>

[http://www.cisco.com/en/US/products/hw/routers/ps133/products\\_tech\\_note09186a0801f5d9e.shtml](http://www.cisco.com/en/US/products/hw/routers/ps133/products_tech_note09186a0801f5d9e.shtml)

<http://www.practicallynetworked.com/sharing/lansetup.htm>

<http://www.lanshack.com> Check the tutorial section for a lot of how to articles and good source of cable information.

<http://fcit.usf.edu/network> Educators guide to networks. Good basic information.

<http://www.techtutorials.info/netcable.html>

<http://www.linktionary.com/c/cablng.html> Another great site with simple illustrations and introductory level information.

Additional questions and directions are in blue text provided by the author. Original network+ test objectives appear in black text.

Another great source of study material is the Study Guide Networking Fundamentals by JoAnne Keltner designed to accompany the textbook and lab manual. She has created a combination study guide work book and a condensed technical reference. It is a great test preparation workbook. Check it out at the G-W web site today.

Draw each of the four topologies and then write a short description of each.

Star –

Bus –

Mesh –

Ring –

What is the advantage of a Mesh topology?

Which is the most common network topology used today for a local area network?

Where is the ring topology most commonly found?

1.2 Specify the main features of 802.2 (Logical Link Control), 802.3 (Ethernet), 802.5 (Token Ring) 802.11 (wireless) and FDDI (Fiber Distribution Data Interface networking technologies).

802.2 (Logical Link Control)

802.3 (Ethernet)

What are the most common speeds associated with Ethernet?

Describe how Ethernet communicates across a network.

Which address is used by the Ethernet protocol, IP address, Mac address or NetBIOS name? **Choose only one.**\_\_\_\_\_

Where does Ethernet protocol align in the OSI model?

802.5 (token ring)

What are the most common speeds associated with token ring?

Describe how token ring communicates?

802.11 (wireless)

List wireless device speed by classification, 802.11a, 802.11b, 802.11g.

Which wireless standards are compatible with each other?

What frequency/bandwidth is assigned to each of the three standards?

FDDI (Fiber Distributed Data Interface)

How does FDDI communicate?

Which topology closely resembles FDDI?

What type of cable is used for FDDI?

Describe access method CSMA / CA (Carrier Sense Multiple Access/Collision Avoidance)

Describe the access method CSMA / CD (Carrier Sense Multiple Access / Collision Detection)

Media

1.3 Specify the characteristics (For example: speed, length, topology, and cable type) of the following Cable Standards:

10BASE-T

10BASE-FL

100BASE-TX

100BASE-FX

1000BASE-TX

1000BASE-CX

1000BASE-SX

1000BASE-LX

10GBASE-SR

10GBASE-LR

10GBASE-ER

1.4 Recognize the following media connectors and describe their uses:

Draw each or use cut and paste from a web browser and attach an example of each connector type. Identify the type of cable and network technology it is associated with.

RJ-11

RJ-45

F-Type

ST (Straight Tip)

SC (Standard Connection)

IEEE1394 (FireWire)

MTRJ (Mechanical Transfer Registered Jack)

1.5 Recognize the following media types and **describe their uses:**

Category 3

Category 5

Category 5e

Category 6

UTP (Unshielded Twisted Pair)

STP (Shielded Twisted Pair)

Coaxial cable

SMF (Single Mode Fiber) optic cable

MMF (Multimode Fiber) optic cable

1.6 Identify the purposes, features and functions of the following network components:

Hubs

Switches



Bridges

Routers

Gateways

CSU / DSU (Channel Service Unit / Data Service Unit)

NICs (Network Interface Card)

ISDN (Integrated Services Digital Network) adapters

WAPs (Wireless Access Point)

Modems

Transceivers (media converters)

Firewalls

1.7 Specify the general characteristics (For example: carrier speed, frequency, transmission type and topology) of the following wireless technologies:

802.11 (Frequency hopping spread spectrum)

802.11x (Direct sequence spread spectrum)

Infrared

Bluetooth

1.8 Identify factors which affect the range and speed of wireless service (For example: interference, antenna type and environmental factors).

List at least three wireless antenna types and describe the characteristics of each.

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