

# Network, Internet and Data Knowledge Test

## Development Guide

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## Introduction

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This Development Guide provides suggestions and information that will help you develop and improve the knowledge needed for the Network, Internet, and Data Knowledge Test. This Job Knowledge test must be passed to be considered for hire into certain job titles at Verizon. The Network, Internet and Data Knowledge Test consists of 40 multiple-choice questions, covering 3 different knowledge areas. The number of items devoted to each knowledge area on the test varies. These knowledge areas are described in this Development Guide.

## Using the Guide

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1. Read the Test Information, Test Preparation Tips, and Test-Taking Tips sections on pages 4 through 8. Then, review the section on ways to improve your score on the job knowledge tests. Read the suggested activities that may help you further develop your knowledge. Tailor the suggestions to fit your specific work style and situation.
2. Each knowledge area measured on the Job Knowledge Test is described in the Topic Areas section of this Guide. First, a brief description of the knowledge area is provided. This description is not a complete tutorial on the knowledge area; it simply defines what the knowledge area means. Following the brief description, a number of relevant aspects of the knowledge area are listed. These are the things you should be sure to learn about when studying for the Job Knowledge Test. Each section description is followed by a sample test question to give you an idea of the type of question that will be asked on the Job Knowledge Test. Suggested resources are provided to help you learn about the knowledge area. These resources include textbooks, websites, and training materials.
3. You might want to read relevant portions of the books listed in the suggested readings. You do not need to read every book that is listed. Most of the books can be found at local libraries and bookstores. The books listed are examples of the type of books that you should read. It is the content of the books, not these specific titles, that is important. You may want to seek out/focus on references that cover a variety of the content covered by the test.
4. You may also want to complete the practice test questions at the end of the Development Guide. Check your answers with the answer key at the end of the Guide. Work to understand the difference between the correct and incorrect responses. The questions included in the practice test are **NOT** the items that are on the actual knowledge test. Successful performance on the practice test **DOES NOT** guarantee successful performance on the knowledge test.

**Note:** Using this Guide does not guarantee that you will successfully qualify on the Job Knowledge Test. Your performance depends on your initial knowledge level, the effort you put into improving your knowledge, and the effectiveness of the activities you undertake.

## Topic Areas

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1. **Hardware:** This topic evaluates skills related to PC performance, RAM, Rev levels, hard-disk sector, IRQ, DMA, troubleshooting IRQ problems, and device drivers.

### Sample Question

A user states that her computer is responding very slowly while she runs several applications at the same time. Writing and retrieving files is not a problem and she can access the Internet. Which of the following is most likely causing the problem?

- a. Insufficient RAM
- b. Bad hard disk
- c. Network driver issues
- d. Incompatible motherboard
- e. Corrupted memory

### Explanation

*The correct answer is A.*

- a. Insufficient RAM is the most likely be problem causing multiple applications to run slowly.
- b. The hard disk is not a likely culprit because writing and reading files is not a problem.
- c. There is nothing in the scenario to indicate a network issue.
- d. There is nothing in the scenario to indicate a motherboard issue.
- e. There is nothing in the scenario to indicate a corrupted memory issue.

- 2. Networking Knowledge:** This topic evaluates skills related to EMI, Ethernet Switch, Routers, Network layer protocols, the OSI model, Components of PPP protocols, ICMP, Debugging RIP routing, get IP from MAC, Troubleshooting network connectivity and network conflicts, and sublayers of the datalink layer.

### Sample Question

To check response of computers connected to the network, a user tries to ping the remote machine and test the response. Which layer of the seven-layer OSI model does the ping command operate?

- a. Session
- b. Network
- c. Transport
- d. Maintenance
- e. Physical

### Explanation

*The correct answer is B.*

- a. The session layer is responsible for establishing, managing and terminating communications sessions between presentation layer entities. This layer is not responsible for the ping command.
- b. As the ping command is used to test network connectivity, it resides on the network layer of the OSI model.
- c. The transport layer of the OSI model is responsible for the delivery of information in either a reliable or unreliable manner. Ping does not reside at this layer of the OSI model.
- d. There is no maintenance layer in the OSI model.
- e. The physical layer deals with bits, bytes and electrical signals and has nothing to do with the ping command.

- 3. OS & Other Software:** This topic covers skills related to Windows 2000 and XP features, file structures, installation problems, booting issues and troubleshooting and resolving OS problems. Registry compositions, backup and restoration in XP, hot fixes and patches for OS.

### Sample Question

On a Windows workstation, an additional primary partition was added and the computer no longer boots even though the boot menu appears. Which file most likely needs to be edited?

- a. BOOT.INI in the SYSTEM32 directory below the operating system directory.
- b. BOOT.INI off the root of the bootable partition.
- c. NTLDR in the SYSTEM32 directory below the operating system directory.
- d. NTLDR off the root of the bootable partition.
- e. NTDETECT.COM in the SYSTEM32 directory below the operating system directory.

### Explanation

*The correct answer is B.*

- a. This file is located at the root of the bootable partition.
- b. This file must be edited to point to the new number for the partition with the operating system.
- c. This file is located at the root of the bootable partition and cannot be edited.
- d. This file cannot be edited.
- e. This file is used for hardware detection and cannot be edited.

## Test Preparation Tips

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This section provides information about how to study effectively and how to apply your knowledge effectively during the test.

### General Suggestions

- Study to learn material now, permanently, rather than putting off the real learning for later.
- Practice not "I will remember!" but "How do I remember?" by finding patterns in the study materials.
- Cultivate interest in the material and confidence in your ability; both improve learning.
- Avoid cramming just prior to the test; it reduces your concentration and increases your confusion! Plunging into material without an organized "plan of attack" does not contribute to learning.

### Study Schedule and Study Environment Suggestions

- Set aside plenty of study time several weeks before the test.
- Devise a special study schedule by dividing material into organized units to learn in a specified period of time.
- Let your family and friends know how important it is that you stick to your study schedule.
- Arrange for a distraction-free and efficient study area.

### Review Suggestions

- Review all the materials you have access to, but don't just skim; strive to understand the material as well as memorize for the test.
- Actively review material by writing things down as you study rather than just passively re-reading the material.
- Remember that pattern-finding is very important to learning large amounts of information.
  - Try to impose a pattern on each topic area you are studying.
  - Outline material by numbering or lettering important points.
  - Find relationships, concrete examples, and applications that will aid your memory of material.
  - Use mnemonics (that is, memory aids such as using the sentence Every Good Boy Does Fine to remember the correct order of musical notes --- EGBDF) when possible to help you learn information.

## Test-Taking Tips

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### Before the Test

- If possible, get a good night's sleep before the test so that you're well rested.
- Go into the test with a positive attitude, determined to do your best. Focus on what you know, rather than worrying about what you do not know.
- Reduce test anxiety and tension by breathing deeply and stretching before the test.

### During the Test

- Read the instructions carefully. Be sure you understand the test instructions before you start.
- Read the entire question and all response options before choosing your answer.
- Be careful not to add or delete any words in the question stem or options.
- Pay attention to words like NOT and EXCEPT.
- Do not over-interpret questions or try to find hidden meanings; the questions are not designed to be tricky. Instead, take questions at face value.
- Try to stay relaxed during the test. If you have trouble concentrating or become tense, pause and take a few deep breaths.



## Ways to Improve Your Score on Job Knowledge Tests

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This section contains development suggestions that should help you improve your job-related knowledge. You may find these suggestions helpful in preparing for the test.

### Developmental Suggestions

- Studying books on basic computers and the basic information on how Internet works and the systems behind it. These books are available in libraries and bookstores.
- Answering practice questions found in books on computers, the Internet and networking. These books are available in bookstores.
- Taking a course in computers, Internet and networking at a community or vocational/technical school.
- Taking formal or self-study training courses in computers, Internet and networking.

## Resources

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### Online VZLearn Training Courses

There are several relevant training courses in VZLearn. You can review the Topic Areas outlined in this Guide to determine some key search terms.

VZLearn can be accessed using the following link and logging in using your Single Sign on:  
<https://learn.verizon.com/>

### Web Sites

#### Hardware

- <https://www.learning-about-computers.com/>
- <https://edu.gcfglobal.org/en/ComputerBasics/>

#### Operating System & Other Software

- [https://www.tutorialspoint.com/operating\\_system/index.htm](https://www.tutorialspoint.com/operating_system/index.htm)
- <https://edu.gcfglobal.org/en/windows10/>

#### Networking

- [https://www.cisco.com/c/dam/global/fi\\_fi/assets/docs/SMB\\_University\\_120307\\_Networking\\_Fundamentals.pdf](https://www.cisco.com/c/dam/global/fi_fi/assets/docs/SMB_University_120307_Networking_Fundamentals.pdf)
- [https://www.cisco.com/c/en/us/td/docs/optical/15000r8\\_5/ethernet/454/guide/r85ether/r85bridg.html](https://www.cisco.com/c/en/us/td/docs/optical/15000r8_5/ethernet/454/guide/r85ether/r85bridg.html)
- <https://www.ciscopress.com/articles/article.asp?p=2092245&seqNum=2>
- <https://www.cisco.com/c/dam/en/us/solutions/collateral/enterprise-networks/intelligent-wan/wan-architecture-and-design.pdf>
- <http://www.ethermanage.com/ethernet/ethernet.html>
- <https://www.ciscopress.com/articles/article.asp?p=2180208>
- <https://www.cisco.com/c/en/us/tech/wan/point-to-point-protocol-ppp/index.html>
- <http://etutorials.org/Networking/network+management/Part+II+Implementations+on+the+Cisco+Devices/Chapter+5.+RMON/>
- [https://www.cisco.com/c/en/us/td/docs/optical/15000r/dwdm/configuration/guide/b\\_snmp.html](https://www.cisco.com/c/en/us/td/docs/optical/15000r/dwdm/configuration/guide/b_snmp.html)
- [http://www.practicallynetworked.com/support/troubleshoot\\_index.htm](http://www.practicallynetworked.com/support/troubleshoot_index.htm)

### Manuals and Published Works

#### Computer Hardware

- Bigelow's PC Hardware Desk Reference Stephen Bigelow, Michael Mueller (Illustrator), Jackie Sieben (Illustrator). Publisher: McGraw-Hill Osborne Media; 2nd edition (December 24, 2002) ISBN: 0072225254.
- MCDST Self-Paced Training Kit. Supporting Users and Troubleshooting a Microsoft Windows XP Operation System. Walter Glenn, Michael T. Simpson, Michael Simpson. Publisher: Microsoft Press; Kit edition (August 25, 2004) ISBN: 0735620652.
- PC Annoyances: How to Fix the Most Annoying Things About Your Personal Computer. Steve Bass. Publisher: O'Reilly; 2nd edition (October 14, 2005) ISBN: 0596008821.
- Upgrading and Repairing PCs, 16th Edition. Scott Mueller. Publisher: Que; 22<sup>nd</sup> edition (July 7, 2015) ISBN: 9780789756107.

### **Operating Systems & Software**

- MCSE Self-Paced Training Kit: Microsoft Windows 2000 Core Requirements, Second Edition, Exams 70-210, 70-215, 70-216, 70-217. Microsoft Press, Corporation Microsoft. Publisher: Microsoft Press; 2nd Bk&Cdr edition (August 28, 2002). ISBN: 0735617716.
- Microsoft Windows 2000 Administrators Pocket Consultant, Second Edition William R. Stanek. Publisher: Microsoft Press; 2 edition (August 14, 2002). ISBN: 0735617929.
- Microsoft Windows XP (Inside Out Series). Ed Bott, Carl Siechert, Craig Stinson. Publisher: Microsoft Press; Bk&CD-Rom edition (November 3, 2004). ISBN: 9780735620445.
- Microsoft Windows XP Plain & Simple. Moon Joyce Resources, Marianne Moon Publisher: Microsoft Press; 2<sup>nd</sup> edition (September 22, 2004). ISBN: 0735621128.
- Microsoft Windows XP Professional Resource Kit. Microsoft Windows Team Staff, The\Microsoft Windows Team Staff. Publisher: Microsoft Press; 3<sup>rd</sup> Bk&Cdr edition (April 1, 2005). ISBN: 0735621675.
- Microsoft Windows XP Professional: Administrator's Pocket Consultant. William R. Stanek. Publisher: Microsoft Press; 2<sup>nd</sup> edition (November 13, 2004). ISBN: 0735621403.
- Windows XP Annoyances. David A. Karp. Publisher: O'Reilly & Associates; 1 edition (October 8, 2002). ISBN: 0596004168.
- Windows XP Tips and Tricks in Easy Steps. Stuart Yarnold. Publisher: In Easy Steps Limited (2005). ISBN: 1840782978.

### **Networking**

- Absolute Beginner's Guide to Networking. Joe Habraken. Publisher: Pearson Education; 4 edition (September 9, 2003). ISBN: 0789729113.
- Computer Networking First-Step. Wendell Odom. Publisher: Cisco Press (April 21, 2004). ISBN: 1587201011.
- Network Tutorial: A Complete Introduction to Networks. Steve Steinke, Network Magazine Editors. Publisher: CMP Books; 5th edition (January, 2003). ISBN: 1578203023.
- Networking in Easy Steps (In Easy Steps Series). Steve Rackley. In Easy Steps Limited (June 10, 2003). ISBN: 184078170X.

## Appendix A. Practice Test

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**Instructions: Please read each question and select only one response to the question.**

1. On his Windows XP Professional system, a user installs new drivers for his video card, network interface card (NIC) and printer. After rebooting the system, he is unable to access resources on his home network and cannot browse the web. Which of the following steps is mostly likely to resolve this problem with the least amount of administration?

- a. Remove the NIC from the system, power the computer on once without the NIC and then install the NIC. Upon reboot, the NIC should reinitialize.
- b. Uninstall the NIC and reboot the system. Upon reboot, the NIC should reinitialize.
- c. In the properties of the NIC, click the Drivers tab and select Roll Back Driver.
- d. In the Properties box of the video card, NIC and printer, click the Drivers tab and select Roll Back Driver.
- e. Reboot the system in Safe mode and uninstall the NIC. Upon reboot, the NIC should reinitialize.

2) You receive a call from a user saying that she has installed a new USB mouse on her Windows XP desktop. After installing the USB mouse, she restarted her desktop and the desktop crashes. You suspect that the problem is due to the USB mouse she installed. How do you restore the desktop to a workable state?

- a. Reinstall the OS.
- b. Restart the desktop and press F8 during startup. The user should go to Safe mode and uninstall the driver.
- c. Use the Last Known Good Configuration.
- d. Advise the user to remove the USB mouse.
- e. Advise the user to purchase another mouse and install it.

3) The client is using a Windows XP computer connected to the modem. When he tries to connect to the Internet, gets an error message that states limited or no connectivity and he is unable to go online. What does the client needs to do to go online?

- a. Check and remove firewall
- b. Use windows hot fix to address the issue
- c. Reinstall the TCP/IP stack
- d. Reinstall the adapters
- e. Assign a static IP address and use the computer to go online

4) A customer is using a catalyst router and keeps a daily log to check the number of ping responses his router is communicating with the outside world. The client has two static IP addresses and is using static routes for load balancing. He has designed the firewall so that he can create a log for the number of ping responses coming in from both IP addresses. He has scheduled the logs to be emailed to him whenever they are full, but the customer is unable to receive any emails due to the defined rule. What could be the cause of this?

- a. The SNMP and SMTP transmit settings on the router, particularly log files, are not correct.
- b. The client is not using the correct authentication.
- c. There are firewalls blocking the inbound port.
- d. The POP3 incoming mail server is not configured.
- e. The SNMP is not working because NAT is present.

5) A Windows XP Professional PC receives a “Page cannot be displayed” error when attempting to access the URL <http://corp-industries.com>. From a colleague’s PC, a technician reports that he is able to access the website. Using the PING command, the remote technician is able to resolve the IP for the problematic URL to 10.28.9.48. In order to provide the customer with a workaround until the network team can investigate further, which of the following would most likely enable the user to access the site?

- a. Under the properties of TCP/IP within the NIC properties, add a manual DNS server entry using the IP address of the website.
- b. Open a command prompt, type `IPCONFIG/REGISTERDNS 10.28.9.48: http://corp-industries.com`.
- c. Open the hosts file found in `%system32% \drivers\etc` and add “10.28.9.48 corp-industries.com”.
- d. Open the lmhosts file found in `%system32% \drivers\etc` and add “10.28.9.48 corp-industries.com”.
- e. Open a command prompt, type `IPCONFIG /FLUSHDNS`.

6) A client connects to his office’s network through a fiber-distributed network with a private IP address on the computers. He is using a third party’s client software to access the remote desktop on the other end. The client can log in to the desktop, establish a multi-session chat and audio conferencing, but he cannot transmit any video from his location to the other desktop. What could be the reason for this?

- a. The third-party client software is not enabled to synchronize for sending video on a private network.
- b. The ports are not opened to the inbound (modem) for the application to allow an easy pass through.
- c. TCP/IP protocol is corrupted.
- d. The remote desktop on the other end is in a different network.
- e. There is firewall block.

7) A customer has purchased a second computer that has a 3Ghz Hyper-Threading processor, a single 200 GB hard drive and runs Windows XP Home Edition for a home network. The user's first computer has a 1.7GHz processor, a 40 GB hard drive, a 160 GB hard drive and runs Windows XP Professional. The 160 GB NTFS formatted drive was converted to a dynamic disk and partitioned into three volumes; one for backup files, one for media and one for work related files. The user moved the hard drive to the new computer, but is unable to access the hard disk using Windows Explorer. Of the following, which is the most likely reason the user's new computer is unable to access this drive?

- a. Windows XP Home Edition does not support drives larger than 120 GB.
- b. Windows XP Home Edition does not support dynamic disks.
- c. Windows XP Home Edition does not support drives with more than one partition
- d. Windows XP Home Edition does not support NTFS.
- e. Windows XP Home Edition does not support drives with more than two partitions and one extended partition.

8) A user has two computers on his network, one running Windows 2000 Professional and the other running Mac OSX. The Mac is used for graphics and video editing and the PC for general Internet, email use and printing. After editing a graphic file on the Mac, the user saves the file as a JPEG in order to reduce its size. He copies the file to his PC. When he tries to access the graphic on his PC, Windows does not recognize the file and the file will not open when he double-clicks on it. Of the following, which is most likely the reason this is happening?

- a. The PC has an NTFS hard drive, which is not compatible with Mac systems.
- b. The PC has a FAT hard drive, which is not compatible with Mac systems.
- c. The file was named with an illegal character or is missing the .jpg extension.
- d. The Mac has an HFS+ formatted hard drive, which is not compatible with Windows.
- e. JPEG files are not cross-platform compatible.

9) You are working as a support executive with an ISP, which is running RIPv1 as IGP. You have been experiencing a slowdown of network after expanding it with a couple of routers all running RIPv1. When you see the interface throughout it shows high level of traffic. Which of the following choices is the most ideal to improve the network performance?

- a. Increasing RIPv1 Update timer.
- b. Making some of the interfaces of the router as passive.
- c. Decreasing the RIPv2 Update timer.
- d. Migrating to RIPv2.
- e. Making all the interfaces as passive.

10) You are working as a Network Administrator of an ISP. You are working on a night shift, and suddenly you see an increase in traffic in one of the gateway link. You enable IP accounting on the router's interface and find out that a large number of ICMP traffic is coming towards your internal webserver. Which of the following approach is the best to handle the situation?

- a. Calling up your boss and asking what to do.
- b. Ignoring the problem for time being and reporting it to the morning shift staff.
- c. Collecting evidence such as logs, and IP accounting screenshots, and blocking the network of origin temporarily using ACL (Access Lists).
- d. Shutting down the input interface of gateway router to stop traffic completely.
- e. Shutting down the targeted webserver.

11) A company recently implemented a TCP/IP network. The network administrator installed open shortest path first (OSPF) for dynamic configuration of routing tables. Of the following, which best describes why OSPF might have been chosen over routing information protocol (RIP)?

- a. RIP uses metrics.
- b. By default, OSPF updates the routing tables every 30 seconds.
- c. Convergence is faster with link-state routing protocols than with distance vector routing protocols.
- d. Link-state routing protocols require less processing power than distance vector routing protocols.
- e. Link-state routing protocols require less memory than distance vector routing protocols.

12) You configure a new network and want to provide routes for use when a routing protocol or link fails. In order to do this, floating static routes must be configured. To adjust the floating static routes to work properly, you must set the administrative distance higher than what is found with dynamic protocols. Which of the following is the correct default administrative distance?

- a. BGP external is 100
- b. External EIGRP is 160
- c. RIP is 110
- d. OSPF is 120
- e. IGRP is 100

13) Robert is a network administrator of a small ISP that has been expanding a lot in recent years. He was using OSPF for dynamic routing inside his AS he was using only one area. Recently he has been observing the CPU and Memory usage of routers going high. What could be the possible reason and solutions respectively out of the following choices?

- a. This is normal in large networks. It can be safely ignored.
- b. This is due to heavy traffic flowing through routers. Add more memory to routers to overcome this.
- c. This is due to improper implementation of OSPF. Proper division of areas should be done to reduce the routing table size.
- d. This is done by malicious traffic generated by some customer. Proper detection tools such as IDS should be deployed.
- e. This is improper implementation of BGP Along with OSPF

14) You are troubleshooting a Windows 98 SE system that crashes when the user attaches a USB flash drive. You locate a Microsoft Knowledgebase article describing the scenario the client is experiencing. To resolve the problem, the registry must be modified. In preparation for this task, you must back up the current registry as well as the User.dat, System.dat and Win.ini files. Which of the following choices will meet these requirements with the least amount of administration?

- a. Click Start/Shut Down and select Restart in MS-DOS mode. Once in DOS, type scanregw/backup. When prompted, click Yes.
- b. Browse to C:\Windows\sysbckup and copy the System.dat, User.dat and Policy.pol files.
- c. Click Start, click Run, type scanregw and click OK. When prompted, click Yes.
- d. Click Start, click Run, type cfgback.exe and click OK. When prompted, click Yes.
- e. Click Start, click Run, type regedt32/backup and click OK. When prompted, click Yes.

15) You are working for an ISP and one of the customers was able to send and receive e-mails using outlook express and use Internet connection. He buys another computer with the ICS feature enabled for sharing the Internet connection with the old computer. After enabling ICS he is not able to send or receive mails. What can be done to resolve the issue?

- a. He needs to check the 'Always use LAN settings' option on his outlook express under tools-accounts-Mail properties section
- b. He needs to use FQDN instead of just using mail account name
- c. He cannot use mails as ICS is only for sharing Internet connection
- d. He needs to use Microsoft Outlook
- e. He needs to configure a WINS server on his LAN



16) To check response of computers connected to the network, a user tries to ping the remote machine and test the response. Which layer of the seven-layer OSI model does the ping command operate?

- a. Session
- b. Network
- c. Transport
- d. Maintenance
- e. Physical

17) You are working for an ISP and one of the customers was able to send and receive e-mails using outlook express and use Internet connection. He buys another computer with the ICS feature enabled for sharing the Internet connection with the old computer. After enabling ICS he is not able to send or receive mails. What can be done to resolve the issue?

- a. 10.28.9.48
- b. 127.254.0.3
- c. 190.23.12.9
- d. 192.168.4.5
- e. 196.39.230.4

18) A user with a home network is attempting to log in to an FTP site and upload files to a web server using a newly purchased Windows XP Professional laptop. The user opens Internet Explorer and enters the FTP address. The page does not display an error, however; the page is blank. Which of the following options will most likely resolve the issue?

- a. Open Add/Remove Programs and select Install Windows Components. Check the FTP client option and click OK.
- b. Open Add/Remove Programs and select Install Windows Components. Check the IIS option, select FTP Service and click OK.
- c. Open IE, click Tools, click Options and select the Advanced tab. Check the Use Passive FTP box and insure Enable Folder View for FTP Sites is checked.
- d. Open IE, click Tools, click Options and select the Security tab. Click Trusted Sites, type the FTP address and click Add.
- e. Have the user log in to the gateway router administration options, open the firewall settings, and insure outbound FTP connections are not blocked.

19) What is the default administrative distance of a RIP protocol in a network?

- a. 110
- b. 120
- c. 30
- d. 14
- e. 151

20) A large technology company offers a number of services to its clients, including high-speed Internet access. The ISP division would like to set up a networking environment where routing tables from different Autonomous Systems can be shared. Due to the increased costs of some providers, the company would like the ability to make manual changes to the routes used. These systems would not utilize a central routing authority. Of the following, which would allow gateways to communicate routing information with other routers that are not in the same SA?

- a. RIP
- b. HELLO
- c. BGP
- d. OSPF
- e. IS-IS

21) After you upgrade the memory (RAM) on your computer's motherboard to more than 256 megabytes (MB), you receive multiple error messages in the Windows XP operating system. After researching the error on the Microsoft web site, you find indications that your computer's motherboard BIOS needs to be updated. What procedure should you follow?

- a. Determine your current BIOS level and check the computer manufacturer's web site for motherboard upgrades. Based on the exact make and model number of your computer, download the BIOS upgrade.
- b. Determine your current BIOS level and check the computer manufacturer's web site for motherboard upgrades. If the exact make and model is not available on the web site, test different BIOS upgrades until one works successfully.
- c. Access the Windows Update site and download the latest updates to your computer. Also, download the updates for key hardware components of your computer (network card, video card, etc.) and the latest virus updates.
- d. From the web site of your computer's manufacturer, purchase the latest BIOS chip for your computer. After it is received, the BIOS chip must be installed on your motherboard. On reboot, all 256 MB should be recognized.
- e. Replace the motherboard based on the recommendations from the computer manufacturer's web site.

22) Assuming a network uses a NETBEUI protocol, you would like to segment the network to reduce the traffic. Which of the following devices could you use for this network?

- a. Router
- b. Bridge
- c. Gateway
- d. Multiplexer
- e. Repeater

23) The client has only one computer and recently bought a DSL connection and a LAN card to connect to the modem. He has installed the modem successfully and the DSL provider also claims that the modem is working fine. The client has to install the LAN card to verify that the DSL is working. The client has a Pentium 2 class computer with 32 bit PCI slots. The LAN card says it is 64 bit. What does the client need to do to install the card?

- a. Install the card in the 32 slot.
- b. Try the card in a different computer.
- c. Get a new motherboard and processor.
- d. Get a converter between 32 bit and 64 bit.
- e. Get an extra attachment for the motherboard to modify the 32 bit slot to 64 bit.

24) Your organization wants to set up two mail servers for the company network. One mail server (mail1) will be configured to receive all incoming mail while the other mail server (mail2) will be used for redundancy and load sharing purposes. How do you set up the DNS records to achieve the same?

- a. Create address (A) record for mail1 and mail2, but create mail exchanger (mx) records for mail1 alone. Set up the mail exchanger record (mx) for mail2 whenever mail1 fails.
- b. Set up mail exchanger (mx) records for both mail1 and mail2 with the same preference.
- c. Set up (mx) records for mail1 with preference 10 and mail2 with preference 50.
- d. Activate mx records for mail2 only when mail1 fails to respond.
- e. Create mx records for both mail1 and mail2. Create a record for mail2 only when required.

25) The client is running Windows XP on a high-end system. The client gets an internal modem and a sound card. He installs the modem successfully on the computer, but when he tries to install the sound card, the Device Manager shows error code 3 in the device status. What is the solution for this problem?

- a. Reinstall the drivers.
- b. Try a different slot.
- c. Swap the modem and sound card.
- d. Assign manual IRQ.
- e. Try the modem and sound card on a different computer.

26) A senior systems engineer is developing a mission critical communications software package that includes video and data. She must determine if she should use TCP or UDP. Of the following, which is her best choice?

- a. UDP is the best choice because it provides guaranteed packet communications.
- b. UDP is the best choice because it can provide Data Link layer encapsulation.
- c. TCP is the best choice because it provides guaranteed packet communications.
- d. TCP is the best choice because it can provide Data Link layer encapsulation.
- e. TCP is the best choice because it provides the fastest speed.

27) A user running Windows XP is a member of a power users group. In order to get an application to work, she must edit the file “C:\WINNT\SYSTEM32\ETC\DRIVERS\HOSTS”. When she attempts to save the file after it is modified, she receives an access denied error. Which of the following are the minimum permissions that will allow power user members to modify the file?

- a. Read, Read & Execute and List permissions
- b. Read, List and Write permissions
- c. Read and Change permissions
- d. Read, Read & Execute and Access Control permissions
- e. Full Control

28) You are troubleshooting a network connectivity problem for a user with a small home network. The user has a network printer, a Windows XP Home Edition PC and a Windows 95 PC connected by a 10/100 Ethernet hub. As part of your troubleshooting steps, you attempt to obtain the IP address information for both systems by using the ipconfig command. When you attempt to run ipconfig on the Windows 95 client, you receive a message that the command is not recognized. Which of the following is the most likely cause?

- a. The Windows 95 system does not have a DHCP address.
- b. A Windows 95 system cannot obtain an automatic IP from a Windows XP Home Edition system.
- c. ipconfig does not exist in Windows 95.
- d. You are not logged in as a local administrator.
- e. You must start MS-DOS in Windows 95 before issuing the ipconfig command.

29) Which of the following MIME subtypes is part of MIME multipart type?

- a. html
- b. external-body
- c. Rtf
- d. header-set
- e. Xpm

30) A customer calls up and expresses her concern that she is continuously receiving a great deal of attached spam emails. She requests you to eliminate this problem immediately. What is the best remedy for this problem?

- a. You can check the incoming mails in mail queue, figure out the source address, and block them accordingly.
- b. You can employ Antivirus, Spam control and content filtering applications on the mail servers and not allow unacceptable messages through the mail gateway.
- c. You can configure the mail relay agent properly.
- d. You can move your mail server from Demilitarized zone to Local LAN.
- e. You can restart the SMTP / POP3 mail services.

31) You are attempting to access the setup mode on a Cisco router. To use the Setup command, what mode must you be in?

- a. Exec mode
- b. Privileged mode
- c. User mode
- d. Superuser mode
- e. Administrative mode

32) Which of the following is a typical way to configure an IP address on a switch?

- a. Through a host entry and reservation in a DNS server
- b. From an FTP client either at a command prompt or a Windows-supported program
- c. From Command-Line Interface (CLI) based program from a PC or terminal connected to the console port
- d. From the Windows XP or 2000 operating system from Programs, Accessories, Communications and Remote Desktop
- e. From a Kerberos request issued within the switch software utility

33) Luisa is a support executive of an ISP. She sits in the NOC (Network Operation Center), and manages the network remotely. Which of the following is a way to connect to a router to configure it?

- a. FTP
- b. TELNET
- c. ping
- d. Traceroute
- e. ipconfig

34) A customer is using an FTP server to send and receive data through a modem from his office computer. He decides to install a router with the port numbers 20 and 21 forwarded for the computer to send and receive data. After installing the router, he cannot initiate passive FTP and gets an error message that states that the transaction failed. Assuming that there could be a problem with the router, he removes the router and tries initiating FTP using the modem, but still gets the error message. What could be the reason for this?

- a. The FTP server is busy and not responding to the customer's request.
- b. The port numbers on the router are not opened.
- c. Passive FTP must be initiated by the server.
- d. The client is using the incorrect user name and password.
- e. In passive FTP, the ports used are dynamic; hence, the forwarded ports on the router do not match.

35) A customer uses PAT (Port Address Translation) to share his Internet connection between his two computers at his home. Which of the following Protocols is not advisable to work with Port Address Translation?

- a. HTTP
- b. H.323
- c. FTP Active mode
- d. POP3
- e. IPMA

36) A client gets cable Internet service from a local provider and the backbone of the local provider is a famous and well-known Internet service company. The client is able to ping any website IP address but is unable to ping the website itself. Assigning static DNS on the computer does not help. What could be the cause for this problem?

- a. TCP/IP port 53 block by the ISP.
- b. TCP/IP is corrupted.
- c. Proxy server is not being used.
- d. The preferred DNS suffix in the computer is not defined under the TCP/IP properties.
- e. BGP protocols on the ISP side is not working.

37) You are concerned that security fixes are not applied on a regular basis to your Windows XP SP1 computer. You want the automatic installation of critical updates, security updates and service packs, not software enhancements or driver updates. In the Control Panel, System, under the Automatic Updates tab, you notice the Automatic option. Which of the following accurately describes what happens when you enable this Automatic Windows Update option?

- a. With Automatic Updates enabled, you can schedule the day of the week (or every day) and time to be notified regarding updates. It is up to you to choose when to download and install the update.
- b. With Automatic Updates enabled, you can schedule the day of the week (or every day) and time for updates to download and install. All updates will be applied, even optional hardware and software fixes.
- c. With Automatic Updates enabled, you can schedule the day of the week (or every day) and time for updates to download and install. However, if the computer is not powered on at the time of the scheduled update, it will cancel the job and run it at the next schedule time.
- d. With Automatic Updates enabled, you can schedule the day of the week (or every day) and time for updates to download only. It is up to you to choose when to install the update.
- e. With Automatic Updates enabled, you can schedule the day of the week (or every day) and time for updates to download and install. Only high priority updates, including security updates, critical updates and service packs, will be automatically applied.

38) A client's computer has Windows XP with SP2 and a firewall installed by default. The client does not know how to remove the firewall and hence, he accidentally deletes the files in the system. He is unable to retrieve any IP addresses from the DHCP and he cannot release and renew the IP address. The adapter and TCP/IP stack seem to be working properly. What can the client do to regain access to the network?

- a. Use system restore.
- b. Reinstall the adapter.
- c. Reinstall the firewall.
- d. Disable and enable the device.
- e. Assign static IP to the computer.

39) A client is using a DSL connection and dials into the network of the ISP. When he installs dialer software and tries connecting through it, he gets an error 608, which says that the error device does not exist. A code 28 on the device manager is displayed. What could be the reason for this error?

- a. The modem is not installed.
- b. The DSL line is not working.
- c. The cable connecting the modem and computer is not working.
- d. The software is corrupted.
- e. No power is given to the modem.

40) You support a small home network with a recently installed Voice over IP (VoIP) phone service. The VoIP connection has 250 Kbps up and 3 Mbps down. The sound quality of the phone service is often poor, with some users unable to carry on conversations. Which of the following statements about VoIP networking is true?

- a. Data transmission is typically deterministic (smooth); whereas, voice is bursty by nature.
- b. VoIP provides poor results on a line with only 256 Kbps up.
- c. Due to the use of UDP, VoIP is more sensitive to latency and packet loss than to bandwidth.
- d. Due to the use of UDP, VoIP is more sensitive to bandwidth constraints than latency and packet loss.
- e. Data transmission in VoIP is connection-oriented, so delays in transmission can occur during resend.

**Answer Key**

- |       |       |
|-------|-------|
| 1) C  | 21) A |
| 2) B  | 22) B |
| 3) B  | 23) A |
| 4) A  | 24) C |
| 5) C  | 25) A |
| 6) A  | 26) C |
| 7) B  | 27) B |
| 8) C  | 28) C |
| 9) D  | 29) D |
| 10) C | 30) B |
| 11) C | 31) B |
| 12) E | 32) C |
| 13) C | 33) B |
| 14) C | 34) C |
| 15) B | 35) B |
| 16) B | 36) A |
| 17) C | 37) E |
| 18) C | 38) A |
| 19) B | 39) A |
| 20) C | 40) C |
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## Appendix B. Practice Items Listed by Topic Area

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**Hardware:** This topic evaluates skills related to PC performance, RAM, Rev levels, NIC in motherboard, hard-disk sector, IRQ, DMA, modem functions, troubleshooting IRQ problems, and device drivers.

**Items: 1, 7, 21, 22, 23, 25, 39**

**OS & Other Software:** This topic covers skills related to Windows 2000 and XP features, file structures, installation problems, booting issues, registry compositions, backup and restoration in XP, hot fixes, and patches for OS.

**Items: 2, 3, 8, 14, 15, 26, 27, 28, 34, 35, 37, 38**

**Networking Knowledge:** This topic evaluates skills related to EMI, Ethernet Switch, Routers, Network layer protocols, the OSI model, Components of PPP protocols, ICMP, Debugging RIP routing, get IP from MAC, Troubleshooting network connectivity and network conflicts, and sublayers of the datalink layer.

**Items: 4, 5, 6, 9, 10, 11, 12, 13, 16, 17, 18, 19, 20, 24, 29, 30, 31, 32, 33, 36, 40**

### Rationale

Use the below rationale to help explain the correct responses to the questions.

#### Question (1)

- a. Because the problem appears to be the newly installed NIC driver, the device is likely to reinstall with the bad driver.
- b. Because the problem appears to be the newly installed NIC driver, the device is likely to reinstall with the bad driver.
- c. Windows XP provides the Roll Back Driver for driver update problems. This is most likely to resolve the connectivity problem with the least amount of administration.
- d. Although this will resolve the issue, it is not necessary to roll back the video and printer drivers.
- e. Safe mode is not needed in this case, because the system is stable.

**Question (2)**

- a. This is not the right solution.
- b. The Safe mode is a minimal mode in which only device drivers that are needed to run the OS are installed.
- c. This may not work because the user might have successfully logged in after installing the mouse, so the Last Known Good Configuration may not be the right configuration.
- d. This does not resolve the problem.
- e. This does not resolve the problem.

**Question (3)**

- a. Firewall has nothing to do with this issue
- b. This error indicates that there is a hot fix that needs to be installed
- c. This is not required since it is an OS issue
- d. It will raise the same problem since the hot fix is not available
- e. The client does not know the range of IP address to assign

**Question (4)**

- a. The SNMP and SMTP transmit settings are not configured which is the reason the customer did not receive the emails.
- b. Since the customer can ping on the network, there is proper authentication.
- c. Since the customer can communicate over the network, there is no firewall blocking.
- d. If POP3 is not configured, the customer will not receive any emails at all.
- e. Since the customer can go online, there is no NAT blocking it.

**Question (5)**

- a. Only DNS servers are intended to be specified here.
- b. The IPCONFIG/REGISTERDNS command registers the local PC DNS record with the DNS server. The arguments “10.28.9.48: http://corp-industries.com” are not valid.
- c. Adding this entry will provide a way for Windows to resolve the address for this URL.
- d. Imhosts files provide NetBIOS name resolution.
- e. This flushes the client DNS cache, which should be done when troubleshooting name resolution, but it is not likely to resolve the host name issue.

**Question (6)**

- a. It should be synchronized to send video over the private network.
- b. If the ports are opened to the inbound (modem), they will not allow for the audio conferencing.
- c. If TCP/IP protocol is corrupted, the client cannot go online.
- d. If the client can use audio conferencing, the desktops are in the same network.
- e. The firewall is not the problem.

**Question (7)**

- a. Windows XP Home Edition supports drives larger than 120 GB.
- b. Windows XP Home Edition does not support dynamic disks. Only Windows XP Professional, Windows 2000 Server and Windows Server 2003 support dynamic disks.
- c. Windows XP Home Edition supports drives with more than one partition.
- d. Windows XP Home Edition supports the NTFS file system.
- e. Windows XP Home Edition supports four primary partitions or three primary partitions and one extended partition.

**Question (8)**

- a. The Mac was able to copy the file to the PC, so the file system must be compatible.
- b. FAT drives can be accessed by both PCs and Macs.
- c. Macs allow files and folders to contain characters that Windows does not allow such as "/". In addition, Mac files also do not require file extensions such as jpg.
- d. Because the graphic was copied to a PC, the format of the Mac drive is irrelevant.
- e. JPEG files are a standard supported by many vendors, including Windows and Mac.

**Question (9)**

- a. Increasing Update times reduces the frequency of routing updates, will reduce the traffic on network but not an ideal solution.
- b. Making some of the interface of router as passive will stop updates leaving that interface and will reduce some traffic and not an ideal solution.
- c. Decreasing Update timer will increase routing updates, and hence will increase traffic on network.
- d. RIPv2 address many shortcomings present in RIPv1, hence should be opted whenever possible.
- e. Turning all interfaces as passive will stop RIPv1 to function, as it will not send routing updates at all.

**Question (10)**

- a. Calling up boss in middle of the night is not a good idea in this situation.
- b. Ignoring the problem even temporarily can have adverse effect on security.
- c. Selective blocking of traffic using access list is the proper method. Collecting some evidence is always a good idea before taking such step to justify the action.
- d. Shutting down input interface of gateway router will cause complete isolation from Internet, which is not a great idea for an ISP.
- e. Shutting down the targeted webserver will not solve the problem, the intruder can attack other webserver as well.

**Question (11)**

- a. RIP does not use metrics when making routing decisions.
- b. OSPF only updates routing tables when a change is detected.
- c. The time required for all the routers to build complete routing tables is faster with link-state routing protocols.
- d. Link-state routing protocols do more processing than RIP and require more processing power.
- e. OSPF performs more processing than RIP and requires more processing power.

**Question (12)**

- a. The default administrative distance for BGP external is 170.
- b. The default administrative distance for external EIGRP is 180.
- c. The default administrative distance for RIP is 120.
- d. The default administrative distance for OSPF is 110.
- e. The default administrative distance for IGRP is 100. Floating static routes are frequently used to supply a route when the routing protocol or link fails. Under these conditions, the static route is normally used with a DDR (dial-on-demand routing) circuit and the administrator assigns a higher administrative distance to the static route than would be found with the dynamic protocols. Once the dynamic routing protocols have exhausted all of their routes or the protocol has failed due to a link failure, the highest administrative distance is the static route.

**Question (13)**

- a. Large network does not mean high CPU and memory usage. Ignoring high CPU and Memory can be catastrophic.
- b. Usually it's the large routing table which causes such a problem, instead of high traffic.
- c. OSPF needs to be properly implemented in large networks, by properly segregating Areas. This reduces routing table size significantly.
- d. Malicious traffic can in some cases increase CPU usage, but should have no effect after the router is upgraded to latest IOS.
- e. There is no mention of BGP in the question.

**Question (14)**

- a. Although this method will back up the registry, it is not necessary to enter DOS or to reboot.
- b. Because Windows 98 makes an automatic backup of the registry the first time its booted each day, these files are most likely older than the current registry.
- c. When you back up the registry using the scanregw utility, Windows combines several files into a Rb0 x.cab file (where x is a number from 0 to 5). The Rb0 x.cab files contain the System.dat, User.dat, System.ini and Win.ini files as well as registry configuration information (including user account information, protocol bindings, software program settings and user preferences).
- d. The cfgback.exe command is for Windows 95.
- e. The regedt32 command is for Windows 2000.

**Question (15)**

- a. This Option will not help as LAN setting is used if dial up is not found
- b. Correct, when the other computer is not directly connected, one has to supply Fully Qualified Domain Name like abc@domain.com so that it can be resolved using DNS and mails can be downloaded on outlook express
- c. Incorrect as it can be done
- d. Incorrect as the problem is not with mail client but with the configuration
- e. WINS is only for local name resolution and cannot replace DNS so FQDN cannot be resolved using local WINS server

**Question (16)**

- a. The session layer is responsible for establishing, managing and terminating communications sessions between presentation layer entities. This layer is not responsible for the ping command.
- b. As the ping command is used to test network connectivity, it resides on the network layer of the OSI model.
- c. The transport layer of the OSI model is responsible for the delivery of information in either a reliable or unreliable manner. Ping does not reside at this layer of the OSI model.
- d. There is no maintenance layer in the OSI model.
- e. The physical layer deals with bits, bytes and electrical signals and has nothing to do with the ping command.

**Question (17)**

- a. 10.28.9.48 is a class A address.
- b. 127.254.0.3 is a class A address.
- c. 190.23.12.9 is a class B address.
- d. 192.168.4.5 is a class C address.
- e. 196.39.230.4 is a class C address.

**Question (18)**

- a. There is no FTP client component to add because the FTP client is integrated in the browser.
- b. This would install the FTP Service used to set up your own FTP server.
- c. These settings adjust the way FTP sends commands in order to make the commands compatible with cable modems and firewalls.
- d. Adding the URL to the trusted site is unlikely to allow FTP access.
- e. Outbound connections are almost never restricted by default on gateway routers/firewalls.

**Question (19)**

- a. This is not correct
- b. Default administrative distance 120
- c. This is not correct
- d. This is not correct
- e. This is not correct

**Question (20)**

- a. The Routing Information Protocol is an interior protocol and will not work.
- b. HELLO is an interior protocol which uses delay as the deciding factor in choosing the best route. It will not work in this case.
- c. The Border Gateway Protocol is an exterior protocol which enhances an autonomous system's ability to choose between routes and to implement routing policies without relying on a central routing authority.
- d. OSPF is a link-state protocol that distributes routing information between routers belonging to a single IP domain, also known as an autonomous system (AS).
- e. Intermediate System to Intermediate System (ISIS) is a link state interior gateway protocol (IGP). It will not work in this case.

**Question (21)**

- a. This is the best process to follow.
- b. Applying the wrong BIOS can damage your computer.
- c. Virus and Windows updates will not update the BIOS.
- d. BIOS updates do not need to be purchased.
- e. BIOS updates do not require motherboard replacement.

**Question (22)**

- a. Routers have the ability to segment the network, but NetBEUI is a non-routable protocol so you cannot use router.
- b. It can work with any protocol because they only look at the MAC address of the packet.
- c. It can handle only the routable protocol.
- d. It will not handle the protocols.
- e. It only carries the signals in the same network.

**Question (23)**

- a. The 64 bit card can be installed in 32 bit slot as it is backwards compatible.
- b. The client only has one computer.
- c. Buying a new motherboard and processor is expensive and unnecessary to resolve this issue.
- d. There is no such converter.
- e. Once created, motherboard features cannot be modified.

**Question (24)**

- a. DNS records take about 24 hours to refresh, so this solution will not resolve the issue.
- b. With this approach, both mail servers will receive the incoming mail, so mail2 cannot be used for redundancy purposes.
- c. SMTP servers will pick the mail server with the lowest preference number working its way up. Therefore, mail1 will be the first preference and if mail1 is not reachable, the SMTP server will select mail2.
- d. DNS records take about 24 hours to refresh, so this solution will not resolve the issue.
- e. DNS records take about 24 hours to refresh, so this solution will not resolve the issue.

**Question (25)**

- a. The drivers are corrupt and need to be reinstalled.
- b. Trying a different slot will not resolve the issue.
- c. Drivers are corrupt; swapping the modem and sound card will not work.
- d. Error code 3 is not a hardware or IRQ issue.
- e. Trying the devices on a different computer will not solve the issue; the drivers are corrupt.

**Question (26)**

- a. UDP does not guarantee datagram communications; it is connectionless.
- b. UDP does not provide encapsulation at the Data Link layer; the data-flow portion of the Data Link layer manages frames or cells.
- c. Because TCP is connection-oriented and guaranteed, it is the best choice for a critical communications software package.
- d. TCP does not provide encapsulation at the Data Link layer; typically, it encapsulates segments which are managed by the Session layer when the device sends data. When receiving data, it is encapsulated by IP packets which are managed by the Network layer.
- e. Although TCP is guaranteed, it is not as fast as UDP. UDP is faster and typically employed when communications are streaming; e.g., streaming video, music, online games or any combination thereof.

**Question (27)**

- a. Write permissions are needed to change the file.
- b. These are the minimum permissions needed to change the file.
- c. Change is not a valid permission.
- d. Access Control is not a valid permission.
- e. Full Control is not the minimum permission needed. Full Control includes all permissions.

**Question (28)**

- a. You would not receive a command not recognized error even if the system did not have a DHCP address.
- b. You would not receive a command not recognized error even if the system was unable to contact a DHCP server.
- c. Windows would not recognize the ipconfig command. In order to obtain the information usually displayed by this command, you must run the winipcfg command.
- d. You would not receive a command not recognized error due to a lack of permissions.
- e. By default, the ipconfig command will not work on Windows 95.

**Question (29)**

- a. The html subtype is part of MIME text type.
- b. The external-body subtype is part of MIME message type.
- c. The Rtf subtype is part of MIME application type.
- d. The header-set subtype is part of MIME multipart type.
- e. The Xpm subtype is part of MIME images type.

**Question (30)**

- a. It is impossible to track all incoming mails.
- b. Gateway Antivirus, spam control, and content filtering can only help in preventing such mails from the outside world
- c. Mail relaying should be configured properly, which can help to some extent.
- d. Moving mail server from Demilitarized zone to Local LAN could not help in controlling Spam mails
- e. Nothing is going to happen just by restarting Mail services

**Question (31)**

- a. Setup will not run in Exec mode; it will only run in Privileged mode.
- b. Setup will run in Privileged mode.
- c. Setup will not run in User mode; it will only run in Privileged mode.
- d. Superuser mode does not exist on a Cisco router.
- e. Administrative mode does not exist on a Cisco router.



**Question (32)**

- a. DNS host entries are not used for IP address configuration; reservations do not exist in DNS.
- b. FTP is used for file transfer, not switch configuration.
- c. This is a typical way to correct the IP address.
- d. Remote Desktop is used to connect to a terminal server.
- e. Kerberos is used as an authentication protocol in Windows 2000.

**Question (33)**

- a. This is a file transfer protocol and is not used to connect to a remote router for configuration.
- b. This is a remote terminal emulation program. It is widely used to configure routers remotely.
- c. Ping is used to check the network connectivity and is not used for connecting remote router for configuration.
- d. Traceroute is used for tracing the path and not used for connecting remote router for configuration.
- e. Ipconfig is used to find the IP configured in the machine and not for connecting remote router for configuration.

**Question (34)**

- a. If the server is busy, the transaction will not initiate.
- b. Once the port is forwarded, the router will send and receive data through the port numbers.
- c. Passive transaction is generally initiated by the server which uses dynamic ports to communicate and the port map command to identify the port numbers to communicate.
- d. If the authentication is wrong, the user will not be able to go up to the transaction stage.
- e. Even after removing the router and connecting with a modem directly, the user gets the same error message, so this cannot be the reason.

**Question (35)**

- a. Wrong, PAT works comfortably with HTTP
- b. H.323 is not advisable as it uses dynamic ports and is used with VoIP.
- c. FTP Active mode work with PAT with no issues as it initiates connection from server side
- d. POP3 also works well with PAT
- e. There is no such protocol as IPMA

**Question (36)**

- a. TCP/IP port 51 and 53 are defined for the DNS name and DNS pass through. The local company that has a DNS server running will have port 51 to be forwarded and 53 to be blocked. Hence any IP address will pass whereas the name resolution will not take place for the corresponding IP address. Hence the client is able to ping IP of a website and not the website itself.
- b. If TCP/IP is corrupted, user will not be able to ping even the IP address of the website.
- c. Use of a proxy server to route a packet through will not work with the DNS as the pass through. This is because it is blocked by the ISP and becomes a security issue as traffic passes through a given port number and IP address.
- d. Generally this is obtained from the ISP automatically on the adapter.
- e. If the BGP protocols are not working, then the connection will not respond to any request. As seen, it is able to ping the IP addresses and hence, it can be confirmed that the BGP is working fine since the ISP is able to pass through ICMP traffic.

**Question (37)**

- a. This describes the Notify Me But Don't Automatically Download and Install option, not the Automatic option.
- b. Optional hardware and software fixes are not applied.
- c. When the OS boots up next, it will download and install the update and prompt the user regarding whether or not to reboot now or later.
- d. The Automatic Update option and time schedule apply to both the download and install.
- e. This accurately describes what happens when the Automatic option is enabled for Windows updates.

**Question (38)**

- a. By using system restore, the configuration can be retained.
- b. Reinstalling the adapter will not work. The files are corrupted.
- c. Reinstalling the firewall will not cause the socket files to come up.
- d. Disabling and enabling of the device will cause the stack to rebind but will not allow the client to regain the registry values that got corrupted when the firewall was deleted.
- e. Assigning static IP will not work. The socket is blocked.

**Question (39)**

- a. The modem needs to be installed to be recognized by the software that the DSL company provides.
- b. If the DSL line is not working, the error message will not be displayed.
- c. If the cable is faulty, the error message will not be displayed.
- d. If the software is corrupted, the client will see a system error message and not a device error message.
- e. If there is no power to the modem, the device manager will not generate an error code.

**Question (40)**

- a. The opposite is true. Voice transmission is typically deterministic (smooth); whereas, data is bursty by nature.
- b. Most VoIP requirements are below 128 Kbps.
- c. VoIP traffic is sent connectionless and can arrive out of order, affecting sound quality. This network more than meets the requirements for bandwidth.
- d. The sound quality of VoIP is affected less by bandwidth problems than by packet loss and latency. If sound packets arrive out of order, the effect on sound quality is quite noticeable.
- e. VoIP is not sent connection-oriented, but uses UDP, a connectionless protocol.