**Computer networks – Question bank -Unit 5**

**1. How Does Dsl Compare To 56 Kbps Analog Modems?**

**Answer :**

DSL is significantly faster than a 56 Kbps modem. Also, DSL is always on so there is no need to dial up to connect to the Internet. And because the connection is dedicated you will be able to host a web server whereas this is not feasible with a dial-up connection. DSL also makes it easy to connect multiple computers to one high-speed line to share the speed on that line among an entire office.

**2.How Does Dsl Compare To Cable Modems?**

**Answer :**

Although cable can be appealing because of its price, there are some inherent drawbacks to cable modem service. First, the cable network is shared, which means as the number of cable users increases the speed on each individual's line decreases. Second, a shared network is inherently less secure than a dedicated service like DSL, as neighboring cable customers can more easily intercept data or hack into another user's computer. Third, the upstream speed on a cable modem is generally no higher than 128 Kbps. Thus, cable modems are unable to provide acceptable levels of speed or security for business purposes.

**3.What Do You Understand By The Adsl Technology?**

**Answer :**

**The following points explain what ADSL technology is:−**

* Discrete Multi-Tone (DMT) modulation used by all ADSL standards for physical layer.
* Divide the frequency band into many small channels.
* QAM modulation on each channel.
* Different bits assigned to each channel in terms of SNR.

4. **What Do You Understand By The Vdsl Access Technology?**

**Answer :**

VDSL stands for Very High Bit Rate Digital Subscriber Line. It is the technology that has the highest rate of DSL. Operating at speeds up to 52Mbps, VDSL is the next generation of DSL technology with higher throughput and requirements for implementing simpler than ADSL.

VDSL began its life being called VDSL, but was renamed VDSL by the ANSI working group T1E1.4. The main reason T1E1.4 decided VDSL on ADSL was that, unlike ADSL, VDSL is both symmetric and asymmetric. VDSL is nearly ten times faster than ADSL and is over thirty times faster than HDSL. The tradeoff for increased speed loop length: VDSL has a shorter reach in the loop.

**5. What Do You Understand By Asymmetric Vdsl?**

**Answer :**

VDSL is designed to offer a multitude of asymmetric broadband services, including digital television broadcasting, video on demand (VoD), high-speed Internet access, distance learning and telemedicine, to name a few.

The delivery of these services requires the downstream channel to have a higher bandwidth that the channel upstream and is asymmetrical. For example, HDTV requires 18 Mbps for video content downstream. Upstream, however, it does not require the transmission of signaling information (e.g., change of channel or program selection), which is of the order of kbps.

6**. What Do You Understand By Symmetric Vdsl?**

**Answer :**

VDSL is also designed to provide symmetrical services for small and medium business customers, business enterprise, high-speed data applications, video conferencing and tele-applications, etc. Symmetric VDSL can be used to provide short-haul T1 replacements NXT1 rate and supports a host of other business applications.

7**. What Are The Key Features Of Vdsl?**

**Answer :**

Following are the key features of VDSL2. **DMT modulation:−**

* + Same as ADSL
  + Bandwidth increased from 30 MHz (14x ADSL2+)
  + Up to 4096 tones (8x ADSL+!)

**Worldwide Versatile Standard:−**

* + 8 Profiles defined for different services
  + Different band plans for different regions
  + Variety of PSDs to optimize spectral compatibility

**Support for a variety of Services:−**

* + Integrated Quality of Service features
  + ATM as well as Ethernet payload
  + Channel bonding for extended reach or rate

8. Compare DSL vs CABLE

9.Are VPNs Secure? Are VPNs Legal?

10.What Does “Zero Logs” Mean? ...

11.What Are the Basics Of VPN Encryption? ...

12.What is a VPN Kill Switch? Compare Commercial VPNs vs Free VPNs. ...

13.If data is 0110111111111100 what is the transmitted data and if received data is 01111110000111011111011111011001111110 what is the actual data in HDLC framing?

14.Describe the ATM AAL layer protocols.

15. A company is granted the site address 181.56.0.0 (class B). The company needs 1000 subnets. Design the subnets.

#### 16.Elaborate the Configuring and Implementing PPP and CHAP on Cisco Routers

17.Differentiate PPP and DSL

18.Why is PPP used with DSL (and SONET)?

## 19.explain HDLC Frame and its types

**20. List the types of stations is HDLC.**

**21.What are the different communication modes in HDLC?**

HDLC supports 3 modes of communication between stations.

a) Normal response mode (NRM)

b) Asynchronous response mode (ARM)

c) Asynchronous balanced mode (ABM)

**22.What is meant by bit stuffing?**

Bit stuffing is the process of adding one extra 0 whenever there are 5 consecutive in the data so that the receiver doesn’t mistake the data for a flag.

# 23. Difference Between High-level Data Link Control (HDLC) and Point-to-Point Protocol (PPP)

**24. Architecture and different layers of ATM**

**25. Why twisted pair CABLES ARE PREFERRABLE OVER COAXIIALCABLES**

**26.** **How Do You Enable Frame Relay On A Cisco Router?**

**Answer :**

To enable Frame Relay on a Cisco router, you must first enable the serial interface for Frame Relay encapsulation with the encapsulation frame-relay interface command:

RouterB(config)#int s 0

RouterB(config-if)#ip address 192.168.1.1 255.255.255.0

RouterB(config-if)#encapsulation frame-relay

**27. In the below diagram, which VPN protocol can be used to establish connectivity between the routers.**



IPSEC.

**28. Name two VPN protocols which can be used to establish client to server connectivity.**

PPTP and L2TP.

**29. An application server requires VPN access by its clients. What type of VPN would you use ?**

SSL

**30.Are the keys created by between VPN routers static or dynamic.**

There are two keys which are the static and dynamic keys. The static key is pre-configured on the routers. The dynamic keys are created by the static key and changes for every session.

**31. What is split tunneling in VPN**

Assume a scenario where a user needs access to the VPN server and internet. The internet and VPN traffic should be routed appropriately. For this purpose, split tunneling is enabled on the VPN client software. This would ensure that all traffic bound for VPN takes the virtual tunnel interface and the internet traffic takes the appropriate physical interface for internet communication.

**32. What VPN topology would you use to connect multiple branch offices to a single VPN office.**

Hub to Spoke.

**33. At what layer does IPSEC and SSL VPN work on ?**

Layer 3 and Layer 7 respectively.

**34. Which IPSEC VPN protocol is used for encryption and authentication.**

ESP.

**35.Why Should I Use Syix.com Instead Of My Phone Or Cable Company?**

**Answer :**

There are many advantages to using SYIX.COM over other options. SYIX.COM DSL has been providing Internet Access as a Primary business since 1995 - It's what we do! We do not try to offer you other services such as pay per view movies or long distance services. When we focus on one thing we can provide a level of service you may not get elsewhere. This is the personal level of service. When You call SYIX.COM you will have your call answered by a real person. Our tech support team has the experience to be able to help you. Are committed to providing the highest quality DSL service to our customers.

* SYIX.COM specializes in providing Internet service.
* In addition to residential ADSL service SYIX.COM offers a true business class SDSL service. Most local phone companies focus only on ADSL service for residential users.
* SYIX.COM monitors their network 24x7, which means our customers benefit from high-quality service.
* End-users can count on SYIX.COM DSL to work when they need it, without worrying about network downtime or poor quality service.

**36.Do I Need To Upgrade My Computer To Use Dsl?**

* **Answer :**
* A Network Interface Card (NIC or Ethernet card) must be installed in your computer. A simple 10BaseT Ethernet NIC will work. Once the NIC is installed it provides a (rj45) jack on the back of the computer allowing you to connect your new DSL modem or router to the computer.

**37.Which Services Can Be Enabled By Dsl Home?**

**Answer :**

Voice, video, data, including IPTV, video on demand, content on demand, etc...

**38. Which Protocol Is Used For Dsl Remote Management?**

**Answer :**

DSL Home remote management protocol (TR-69) and its extensions are access agnostic.

**39.Which Protocol Is Used For Dsl Local Management?**

**Answer :**

The TR64 protocol is used for DSL local management.

xplain twisted pair cable.

A pair of wires twisted with each other is known as twisted pair cable.

A set of four pairs of twisted wires are bundled to form cable. These

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**40.Protocol Of Frame Relay Rely On For Error Checking?**

**Answer :**

Frame Relay does not rely on any certain protocol for error checking. Instead, it relies on upper-layer protocols to provide error checking. For example, Frame Relay relies on TCP to provide error checking in an IP network.

**41.What Are The Bandwidth Specifications Of Frame Relay?**

**Answer :**

* Access Rate
* Committed Information Rate

**42.How Does Frame Relay Use Inverse Arp?**

* **Answer :**
* Frame Relay uses Inverse ARP as a way to dynamically map a network layer address to a DLCI. With Inverse ARP, the router can discover the network address of a device associated with a VC.

43. DNS uses UDP instead of TCP. If a DNS packet is lost, there is no automatic

recovery. Does this cause a problem, and if so, how it is solved?

The following character encoding is used in a data link protocol:

A: 01000111; B: 11100011; FLAG: 01111110; ESC: 11100000

Show the bit sequence transmitted (in binary) for the four-character frame: A

B ESC FLAG when each of the following framing methods are used:

i. Character Count

ii. Flag bytes with byte stuffing

iii. Starting and ending flag bytes, with bit stuffing. (12marks)

44. Discuss about the structure and working of Switched Ethernet. (8)

(i) A block of 32 bits has to be transmitted. Discuss how the thirty two bit block

is transmitted to the receiver using Longitudinal Redundancy Check. (4)

(ii) Consider a 32 bit block of data 11100111 11011101 00111001 10101001 that

has to be transmitted. If Longitudinal Redundancy Check is used what is the

transmitted bit stream? (6)

(iii)In the Hamming code, for a data unit of m bits how do you compute the

number of redundant bits ‘r’ needed? (6)

45.

i. In classful addressing how is an IP address in class A, Class B and Class C

divided? (4)

ii. Given the address 23.56.7.91 and the default class A mask, find the beginning

address (network address). (6)

iii. Given the address 201.180.56.5 and the default class C mask, find the beginning

address (network address). (6)

46. What are the ways to address the framing problem?

Answer :

The framing problem can be addressed by the following protocols:

 Byte-Oriented Protocols(PPP)

 Bit-Oriented Protocols(HDLC)

 Clock-Based Framing(SONET)

47. A company is granted the site address 181.56.0.0 (class B). The company needs 1000 subnets. Design the subnets.A bit string 0111101111101111110, needs to be transmitted at the data link layer.What is the string actually transmitted after bit stuffing?

48. What is the relevance of Duration field in an 802.11 frame?

49. A network on the internet has a subnet mask of 255.255.240.0. What is the maximum number of hosts it can handle?

50. Explain ATM with architechture?