CH2:

Q1: What are The Underlying Technologies ?

- **Packet Switching**
  communication is broken up into packets
  Two ways of path selection:
    Virtual circuit: Path is preselected. stay the same for entire communication
    Datagram: Path is not predetermined. Packet is sent to the next best node at that time.
- **Routers**: interconnects two or more networks. It is a small computer with network interfaces, memory and program dedicated to packet switching function
- **TCP/IP:** Transmission Control Protocol/Internet Protocol: is the communication protocol for the Internet
- **Clients + Servers = Distributed Computing**
- **Computer Names**

Q2: What is a socket?

A socket = IP address with port number. e.g., 169.49.209.19:20

Q3: What is web?

Web is the collection of documents, text, voice or video, stored on Internet**.**

CH3:

Q4: What are the purposes of DNS servers? How do they work?

- Maps domain names into IP addresses
- Receives requests from other DNS servers to map domain names into IP addresses.

When a mapping request is received DNS server has the following options:

- It has the info therefore does the mapping and supplies the answer.
- It does not have the info in which case it contacts another DNS server called alternate DNS server.

If there is no mapping possible it simply returns an error message.

CH4:

Q5: Definition of a server?

computer that is providing the services to the client requests. It must have the power, speed and storage to be able to handle multiple requests from clients.

CH5:

Q6: What is web server? Give two examples and explain their advantages and disadvantages?

- Web servers are the computers that actually run websites.
- A computer program that is responsible for accepting HTTP requests from web clients, and serving them HTTP responses along with optional data contents.

Examples:

- **Internet Information Server/Services (IIS):** World Wide Web server. Gopher server. FTP server. SMTP.
- **Apache**: Some features: Virtual Hosts, Customized responses to errors, allows you to easily set up password-protected pages.

Web Server-IIS Advantages:

- GUI interface
- Works well with other Microsoft applications.
- Performance Monitor feature
- Good Tech Support

Web Server-IIS Disadvantages:

- only works with the Windows OS
- not flexible due to Microsoft constraints
- Source code is proprietary.

Web Server-Apache Advantages:

- Industry standard for most web servers.
- Open source.
- Allows remote administration.
- Multi-platform.
- The software is free.

Web Server-Apache Disadvantages:

- Console mode installation.
- No real tech support, except for message boards and third party vendors.
- not regularly updated.
- Requires more technical knowledge to install and configure.

Q7: What is virtual host? And what are the advantages of using it? Explain its methods in details?

Virtual hosting is a method to host more than one domain name on the same computer, sometimes on the same IP address.

main advantage is: cost-effectiveness. good solution for small to medium-sized websites

Two methods:

- Name based: virtual hosts use multiple host names for the same web server IP address
- IP based: each site points to a unique IP address.

Virtual Host-Name based

- The browser sends the URL to the server.
- The server can use this information to determine which web site, as well as page, to show the user.
- For example: www.site1.com and www.site2.com, both resolve to the same IP address.
- For www.site1.com, the server would send the HTML file from the directory /var/www/user/abc/site/, while requests for www.site2.com would make the server serve pages from /var/www/user/xyz/site/.
- Fails when site is accessed through IP.
- Can not work in secure environment.

Virtual Host-IP Based

It can serve only a certain maximum number of requests per second depending on:

- the HTTP request type,
- whether the content is static or dynamic,
- whether the content is cached,
- hardware and software limitations of the OS of the computer on which the web server runs.

When a web server is near to or over its limits, it becomes unresponsive.

Q8: How to overcome server limitations?

- Managing network traffic
- Adding more hardware resources
- Tuning OS parameters
- Using more efficient web servers

CH HTTP:

Q9: What is a plug-in and what is a helper application?

A plug-in is a code module that the browser fetches from a special directory on the disk and installs as an extension to itself.

- It runs as an integral part of the browser (i.e. in the same process). It has access to the current page.
- The interaction between the plug-in and the browser is through a browser-specific procedures interface.

Helper Application: A standalone application run as a separate process.

- The only interaction between the browser and the application is at invocation time and upon termination of the application.

Examples:

- Adobe Acrobat Reader (could be a plug-in too ??)
- Microsoft Word

Q10: What to do if too many requests come to the CPU?

Problem: no single cache.

Solutions: 1)Let Front End keep all requests 2) Use a shared memory multiprocessor

Q11: What are cookies? How do they work for client and server?

A **cookie** is a small piece of information as a file (up to 4K) stored on the client machine in a user-specific.

- Cookies are good for keeping track of return visitors
- Cookies are generated at the server side and is delivered to the browser before the Web page

Client side:

- When the user specifies a URL, the browser searches it's cookie directory for a cookie with the domain name specified in the URL.
- If a cookie for the actual domain exists, it is uploaded to the server with the page request.

Server side:

- The first time a Web page is requested no cookie follows the request so the server creates a cookie and returns it before the requested page.
- For later visits to the same page, the request will contain the cookie generated at the previous visit.
- The server updates the cookie and returns it with the page
- This way the server "remembers" the client from one visit to the next

Q12: What are the main important attached to DOM? Explain each one briefly.

- Properties are data elements of objects. For example for document object some properties are: bgcolor, title, URL
- Methods are built-in actions or functions that an object can perform. For example for document object one common method is: write(). We use document.write('Hello').
- Most objects in the DOM have specific events to which they can respond. For example for form object we have onReset event that will fire when the text in textbox changes