Cyber Security
ASSIGNMENT - 2

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1. All the three owners (user owner, group, others) in the Linux system have three types of permissions defined.

   1.) Read (r) : The read permission allows you to open and read the contents of a file. But you can't do any editing or modification in the file.

   2.) Write (w) : The write permission allows you to edit, remove or rename a file. For instance, if a file is present in a directory and write permission is set on the file but not on the directory, then you can edit the content of the file but can't remove, or rename it.

   3.) Execute (x) : In Unix type system, you can't run or execute a program unless execute permission is set. But in windows, there is no such permission available.

2. 1.) Ipconfig

   Displays all current TCP/IP network configuration values and refreshes Dynamic Host configuration Protocol (DHCP) and Domain Name System (DNS) settings. This command is most useful on computers that are configured to obtain an IP address automatically. This enables users to determine which TCP/IP configuration values have been configured by DHCP, Automatic Private IP Addressing (APIPA), or an alternate configuration.

   2.) Nbtstat

   Displays NetBIOS over TCP/IP (NetBT) protocol statistics. NetBIOS name tables for both the local computers and ~~network~~

remote computers, and the NetBIOS name cache. Nbtstat allows a refresh of the NetBIOS name cache and the names registered with Windows Internet Name Service (WINS).

3.) Netstat

Displays active TCP connections, ports on which the computer is listening, Ethernet statistics, the IP routing table, IPv4 statistics and IPv6 statistics.
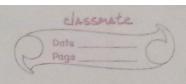
4.) ARP

Displays and modifies entries in the Address Resolution Protocol (ARP) cache, which contains one or more tables that are used to store IP addresses and their resolved Ethernet or Token Ring physical addresses.

3.	HTTP	HTTPS
(i)	It stands for Hypertext Transfer Protocol.	It stands for Hypertext Transfer Protocol Secure.
(ii)	HTTP URL in browsers address bar is http://	HTTPS URL in browsers address bar is https://
(iii)	It sends data over port 80.	It sends data over port 443.
(iv)	It is unsecured.	It is secured.
(v)	It operates at application layer.	It operates at transport layer.
(vi)	NO SSL certificates are required for HTTP.	With HTTPS it is required that you have an SSL certificate and it is signed by a CA.
(vii)	HTTP doesn't require domain validation.	HTTPS requires at least domain validation and certain certificates, even require legal document validation.

(viii) No encryption in HTTP.	Data is encrypted before sending in HTTPS.

4. A firewall is a network security device, either hardware or software based, which monitors all incoming and outgoing traffic and based on a defined set of security rules it accepts, rejects or drops that specific traffic.

In addition to the use of simple configuration of a single system, more complex configurations are possible:

(i) Screened host firewall system (single-homed bastion host)
firewall consists of two systems, a packet-filtering router and a bastion host. The router is configured so that:
- for traffic from internet, only IP packets destined for the bastion host are allowed in.
- for traffic from the internal network, only IP packets from the bastion host are allowed out.
The bastion host performs authentication and proxy functions

(ii) Screened host firewall system (dual-homed bastion host)
The packet-filtering router is not completely compromised. Traffic between the private hosts on the private network has to flow through the bastion host.

(iii) Screened subnet firewall configuration
It is the most secure configuration of the three. Two packet-filtering routers are used. Creation of an isolated sub-network which consist of simpey the bastion host, may also include one or more information servers and modems.

5. Perquisites to configure a server are:
1. LAN card should be connected.
2. Root (partition on which window is installed) should be in NTFS.
3. Server should be configured with a static IP. address.

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