INSTITUTE OF TECHNOLOGY OF CAMBODIA

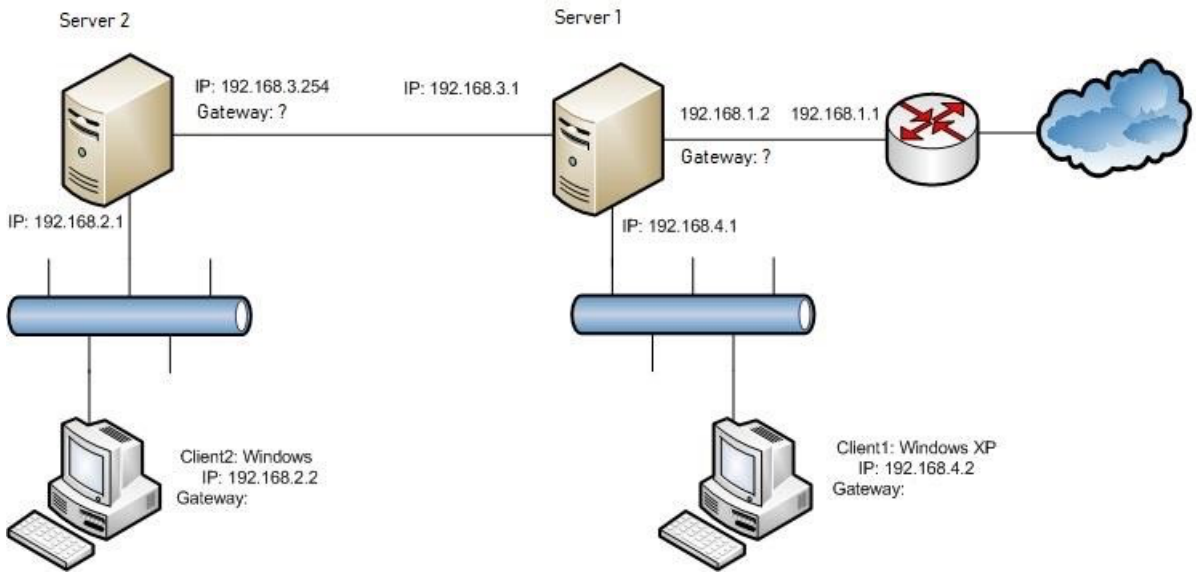
Department of Information and Communication Engineering (GIC)

System and Network Administration Year IV Semester 2

Final Examination

Answer all the questions below with explanation and examples. The Total mark is 100.

1. Consider a tree network topology:



   a. How many local networks (LANs) are there in this topology? What are they?
      ➔ 2
      ➔ Server 1, client 1 and Server 2, client 2
   b. To allow Server 1 to access to the internet, what should be the ip address of its gateway?
      ➔ 192.168.1.1
   c. What should be the ip address of gateway on Server 2. Could Server 2 access to the internet?
      ➔ 192.168.1.1
   d. To allow client 1 and client 2 to be able to use service from server 1 and server 2 respectively, what should be the ip address of their gateway?
      ➔ Client 1: 192.168.2.1
      ➔ Client 2: 192.168.4.1
   e. What do we need to do on both servers to allow client 1 and client 2 to access to the internet?
      ➔ Config DNS
      ➔ Config DHCP
2. Explain **forward lookup zone** and **reverse look up zone** in DNS server. How do you know if your DNS server is successfully configured and working?

➔ Forward lookup zone translates DNS names into IP addresses and provides information about available network services.
➔ Reverse lookup zone translates IP addresses into DNS names.

➔ Run nslookup

3. Explain the differences between **local user account** in computer machine and **AD user account (from server)**. How do you configure your client machine (Windows OS) to be able to use AD user account to login?
   ➔ Local user account use for client.
   ➔ AD user account use for managing in server.
   ➔ Configure your client machine (Windows OS) to be able to use AD user account to login is we need to change its domain name

4. What is the use of command **ipconfig** in Windows? What do you do to diagnose (finding the cause) the connection issue on client machine to server? (You can describe all possible cases you used to encounter. Ex. Server Connection, DNS error)
   ➔ Ipconfig use to displays all current TCP/IP network configuration values and refreshes Dynamic Host Configuration Protocol (DHCP) and Domain Name System (DNS) settings.
   ➔ Diagnose by ping to server ip and ping to domain name

5. When a client device connects to **DHCP server**, what are the five information that DHCP server provides to DHCP client?
   ➔ Client's client id (mac address)
   ➔ Ip address that server offer
   ➔ Subnet mask
   ➔ The lease duration
   ➔ Ip address DHCP server

6. How to configure a computer to become a **server**; how to configure a computer to become a **client**? (You can provide example with real ip address for better explanation.)
   ➔ Configure a computer to become a server:
      - Set up computer to Server OS (Ex: window change to window server)
      - Config user admin
      - Config ip address computer
      - Open firewall
      - Config DNS
   ➔ Configure a computer to become a client: we need to change its domain name to domain of server than login with user account in server

7. Describe the advantage of using **RemoteApp programs** function in Windows Server.
   ➔ They can be launched from the Windows Start menu like any other local application, and can also be opened with Windows Search.

- ➔ Updates to a RemoteApp session, such as newly configured RemoteApps, automatically reflect on the user's local desktop.
- ➔ Users can seamlessly access programs and applications on the cloud from a central location.
- ➔ Users can simultaneously manage both local and remote applications through multiple windows, without having to minimize an RDP session to access locally installed files or applications.

8. Explain two types of **file sharing services** in Windows Server? What are their differences? If your client machine uses a Unix OS connecting to a Windows Server, what is the suitable file sharing service should be used here?
   - ➔ NFS uses a server-client architecture to make files accessible to multiple computers over a local network. On the server machine, admins write config files that specify which local directories on the server should be shareable over the network.
   - ➔ SMB uses a server-client architecture that is similar to that of NFS: A computer that has files to share configures them to be available over the network, and client computers can then connect to them by entering the hostname of the computer (or its IP address) and the path to its SMB file share.
   - ➔ SMB is the native file sharing protocol implemented in Windows systems but NFS is used by Linux systems to share files and folders
   - ➔ Suitable file sharing service should be used is NFS

9. Describe the advantage of using remoting **OpenSSH** function. Does Windows Server Firewall allow SSH connection? What is its usual port?

   - ➔ allows client to remote login to server. It can authenticate clients using a variety of different methods. SSH password authentication allow us to remote login to the server with username and password.
   - ➔ No
   - ➔ 22

10. What is HTTPS? What is required to successfully configure HTTPS on Windows Web Server?
    - ➔ Hypertext Transfer Protocol Secure (HTTPS) is an extension of the Hypertext Transfer Protocol (HTTP). It is used for secure communication over a computer network, and is widely used on the Internet.
    - ➔ Certificates