**ICT laboratory work**

**Cloud**

A service, which is usually rented for a certain period of time with a subscription. It can perform different tasks depending on the needs of the user. For example, store data, use servers and virtual computers. These services are beneficial for businesses and normal users because they are less costly than renting or buying physical devices.

**Q1: What is the difference between a private ip and public ip?** A private IP address is used within a local network to allow devices to communicate with each other securely and is not visible on the internet. In contrast, a public IP address is unique and assigned by an Internet Service Provider (ISP) to enable devices to communicate over the internet, making it globally visible and traceable.

**Q2: what is Ip4 and Ip6?** IPv4 is the older Internet Protocol version using 32-bit addresses, providing about 4.3 billion unique IPs, mainly written in dotted-decimal format. IPv6 is the newer version designed to solve IPv4 address exhaustion with 128-bit addresses, allowing an almost unlimited number of IPs, written in hexadecimal with colons. Additionally, IPv6 includes improved security, better routing, and auto-configuration features that IPv4 lacks.

**Q3: What is static and dynamic ip?** A static ip is a fixed ip that is assigned manually to a device, which is better for hosts and for consistent network connections because it doesn’t change over time. It’s usually more expensive and less secure because it’s made by the user. But in dynamic ip the address is assigned automatically with DHCP server and can change each time a device reconnects to the network. It’s usually used at homes and for personal devices. Because of that it’s less expensive and offers more privacy.

**Q4: What is subnetting?** Is a process of breaking down the Ip address into smaller, more practical segments called subnets. It improves network performance and security. Each subnet operates as a separate network with its own ip address. Subnetting is essential for organizing networks and improving communication efficiency between different devices in the subnet.

What is DNS? It’s a global directory that translates human-readable domain names, the ones we can see on the browser, into names that can be read by computers which is the ip address. That way the computer can understand and recognise the names of websites and users can comfortably search for the websites name instead of having to search for the ip address.

Explain Von Neumann Architecture? It’s a computer design model that is used in almost all modern computers. Its program design is crucial because it allows devices to be easily reprogrammed for different tasks by loading a new segment of instructions into memory.

What is ALU and CU? The ALU is the calculator and decision maker of the cpu. It’s the component that performs arithmetic and logic operations.

CU is the manager and coordinator of the cpu. It gives other hardware components instructions that have been executed by the cpu.

What is client server and what is peer-to-peer?

A client server is when there is centralised connection that is one to many and there is a sender and a receiver. A peer to peer model is when there is a network with few users like 2-4. It can be created by activating hotspot and because of that connection is generally slower since a user is sharing data of an existing network with other users.

What is a thick and thin client?

A thick client is when the connection to the server is done relying more on the hardware, which can require powerful components. A thin client relies on servers to do most of the job. Its like a virtual computer network making it a more affordable option than thick client.

What is bus,star,mesh and hybrid?

Bus: network model where data transfer is one way only, which doesn’t allow to have more than one sender at a time, otherwise the network would shut down.

Star: All devices are connected at a hub/switch and if a device has functional problems than the whole network wouldn’t work because the model is centralised.

Mesh: Is when all devices are inter-connected between each other with a lot of cabling and it also takes a lot of time to create this network. Since in the model devise are connected between each becomes very secure, stable and powerful, but comes at a high cost.

Hybrid: Means the network can use a combination of topologies for certain purposes.

What is wap? Wireless application protocol. It was a protocol that allowed old cell phones to connect to a very simple, text-based version of the internet.

Optic fibre cable? Fibre optics use light to transmit information and carry out messages. They are super fast, very secure, have no interference unlike with electricity and can be connected at a long distance.

Difference between public and private cloud? Computing services like servers storage and software that a third company owns and rents out on the internet. Examples are: Amazon AWS and Google cloud platform. A private cloud is used exclusively by one single organization. It can be physically located at a company’s own data centre or it can be outsourced with a third party provider, but it will be made just for one particular organization.

Wireless access point? A physical device known as a hub that provides wireless connection for wired networks, so that a group a devices can be connected with lan cables and others to wifi. That way its more convenient because its difficult to manage lan cables across different floors like in an office or school.

Homework 14/10

What is csma/rd?

Network protocol used in ethernet networks to manage how data packets are transmitted over a shared communication. It prevents data collisions when multiple devices try to send data at the same time.

What is Bit rate?

Refers to the amount of data transmitted per unit of time in a network or communication system. Its measured in bps with higher bit rates meaning faster transmission speed.

What is Broadband speed?

Rate at which data can be transmitted over an internet connection, It’s usually measured in mbps or gpbs if the connection is very fast.