|  |
| --- |
| Photo displaying partial image of two pie charts on a canvas-textured page |
| Clear Thinking Clinic  Presented by ……….. |
| |  |  |  | | --- | --- | --- | | NVL Institute |  | Computer Networks | |



**NCC Education**

**LEVEL 4 DIPLOMA IN COMPUTING**

**COMPUTER NETWORKS**

|  |
| --- |
| Centre Name : NVL INSTITUTE  Assignment Title : CLEAR THINKING CLINIC  Exam Cycle : DECEMBER 2018  Candidate Name : XXXXX  NCC Education ID No : XXXXXX  Submission Date : 31.Oct.2018 |
| Marker’s Comments :  Moderator’s Comments :  Mark: Moderated Mark: Final Mark: |



**Statement and Confirmation of Own Work**

***Each time you submit an assignment you must attach this statement as the cover page for both the hard copy and the electronic version. If the statement is missing, your work will not be marked.***

**Student Declaration**

I have read and understood NCC Education’s Policy on Academic Dishonesty and Plagiarism.

I can confirm the following details:

**Programme/Qualification Name** : LEVEL 4 DIPLOMA IN COMPUTING

**Student ID/Registration Number** : XXXXXXXX

**Name**  : XXXXXX

**Centre Name** : NVL INSTITUTE

**Module Name**  : COMPUTER NETWORKS

**Module Leader** : U MIN THU KHANT

**Number of words** :

I confirm that this is my own work and that I have not plagiarized any part of it. I have also noted the assessment criteria and pass mark for assignments.

**Due Date** : 31. Oct.2018

**Student Signature**  : **XXX**

Submitted Date : 31. Oct.2018

Contents

[INTRODUCTION 5](#_Toc523488113)

[ACKNOWLEDGEMENT 6](#_Toc523488114)

[Task1: Network Infrastructure and Protocols 8](#_Toc523488115)

[(a) 8](#_Toc523488116)

[(b) OSI 7-layer Model 8](#_Toc523488117)

[(c) Seven Protocols 8](#_Toc523488118)

[(d) Hub, Switch, Wireless Access Point, Router 8](#_Toc523488119)

[Task 2: Addressing 10](#_Toc523488120)

[(a)Network Address and Host Address 10](#_Toc523488121)

[(b)Private IPV4 and Public IPV4 Address 10](#_Toc523488122)

[(c)DHCP 10](#_Toc523488123)

[(d)Difference between IPV4 & IPV6 10](#_Toc523488124)

[(e)Gateway 10](#_Toc523488125)

[(f)Subnet mask 10](#_Toc523488126)

[(g)IP Routing 10](#_Toc523488127)

[Task 3: Security 12](#_Toc523488128)

[(a)Three Main Security concepts 12](#_Toc523488129)

[(b) 12](#_Toc523488130)

[(c) 12](#_Toc523488131)

[(d) 12](#_Toc523488132)

[(e) 12](#_Toc523488133)

[Task 4: Diagram and Explanation 15](#_Toc523488134)

[(a)Logical Network Diagram 15](#_Toc523488135)

[(b) 15](#_Toc523488136)

[(c) 15](#_Toc523488137)

[(d)Local Price and Specification of Hardware and Software 15](#_Toc523488138)

[Task 5: Telephony 17](#_Toc523488139)

[(a)What is VOIP? 17](#_Toc523488140)

[(b) 17](#_Toc523488141)

[(c) 17](#_Toc523488142)

[CONCLUSION 18](#_Toc523488143)

[REFERENCE 19](#_Toc523488144)

# INTRODUCTION

Hello – and let me introduce myself. I’m Zin Min Htike, but people call me Zin Min and I am the owner and founder of The Health Improvement Center in Vienna VA. I am a Clinical Nutritionist, Chiropractor and ophthalmology. I helped as many people as possible restore their health naturally. Natural health care gets to the root of our health concern rather than chasing our symptoms.

My aim is also to educate my clients and the people I meet about natural health care options including what I do and how 70% of getting better depends upon what people eat. I would rather teach someone how to fish than to give them a fish; meaning that I want to educate my clients so they can help themselves and not be dependent on me. Ophthalmology Suite is a web based electronic patient record and management system designed by ophthalmologist for ophthalmologists. It is hosted in UK on a secured server with highest level of encryption available.

This ophthalmology software provides easy to use interface and pathway to manage patients. It follows patient journey from referral to appointment to clinic and then an outcome. Therefore, it is a healthful for everyone to go to clinic and enjoy life through playing many physical exercise. Park is also essential for everyone to enjoy life.

# ACKNOWLEDGEMENT

Thank you my mother, my brother and my teacher for help me

TASK-1

# Task1: Network Infrastructure and Protocols

## (a)

## (b) OSI 7-layer Model

We have already examined the OSI 7-layer model. The Open System Interconnection model defines a networking framework to implement protocols in seven layer. The OSI 7-Layer are

* Physical layer
* Data link layer
* Network layer
* Transport layer
* Session layer
* Presentation layer
* Application layer

Physical layer

The physical layer or layer 1 is the first layer and the lowest layer of all. This layer is responsible for sending bits from one computer to another computer and it is not connected with the meaning of bits and deals with the physical connection to the network, transmission and reception of signals. This layer is a higher level functions in a network.

Data link layer

The data link layer or layer 2 is most reliable node delivery of data. Error detection bits are used by the data link layer. It is also correct errors

Network layer

The network layer or layer 3 is the third layer. This layer is connected on the same link, then there is no need for a network layer and responsible for packet forwarding including routing through intermediate routers.

Transport layer

The transport layer or layer 4 is to be delivered he entire message from source to destination. Transport layer is handle more efficiently by the network layer and ensures that message arrives in order by checking error and flow control.

Session layer

The session layer or layer 5 is a reference to a certain time frame for communication between two devices, two system or two parts of a system.

Presentation layer

The presentation layer or layer 6 is handles data-formatting information for network communication for outgoing message, it converts data into a generic format that can survive the rigors of network transmission and presentation layer is also known as keynote.

Application layer

The application layer or layer 7 is handles general network access, movement of data from sender to receiver and error recovery for applications, when applicable. Application layer mainly involved with running the computer.

The OSI 7-layer if we condense call All People Seem To Need Data Processing.

## (c) Seven Protocols

There is no single protocol that is specific to a single layer. The protocols are depended network type and manufacture of the hardware. I choose the best seven protocols. These protocols are

* HTTP
* UDP
* IP
* SMTP
* FTP
* POP3
* DHCP

|  |  |  |  |
| --- | --- | --- | --- |
| No | Protocol | Purpose | layer |
| 1 | HTTP | Hypertext Transfer Protocol  It is foundation of data communication for world wide web and a server-client model | Data link layer |
| 2 | UDP | User datagram protocol  It is use a simple connectionless communication model with a minimum of protocol mechanism. | Transport layer |
| 3 | IP | Internet protocol  It is use local network and internetworking  It function is routing access internetworking and essential establish the internet. | Network layer |
| 4 | SMTP | Simple Mail Transfer protocol | Physical layer |
| 5 | FTP | File Transfer Protocol  It is use transfer of computer files between a client and server on a computer network. | Application layer |
| 6 | POP3 | Post Office Protocol  It allows check mail-box server and download any mail  It has not any other offer features except mail download. | Application layer |
| 7 | DHCP | Dynamic Host Configuration Protocol  It is use for automatic configuration of client network interfaces and communicated in network. | Application layer |

## (d) Hub, Switch, Wireless Access Point, Router

Hub

A hub, also called a network hub, is the central part of a wheel that connects the axle to the wheel itself. It is use connects multiple Ethernet devices together, making them act as a single segment and connect data coming together in a physical star topology. Hub work base on the physical layer or layer 1.

Switch

A switch is a piece of a physical circuitry component that governs the signal flow. A switch allows a connection to be opened or closed. It is use different functions, adjust the power level and in star topology network. Switch work base on the Network layer or layer 3.

Wireless access point

Wireless access point is a networking hardware that connect a Wi-Fi device to a wired network and connect a group of wireless stations to an adjacent wired local area network (LAN). It is use creates a wireless local area network, or WLAN, usually in an office or large building. Wireless access point connects with wired router, switch, or hub and Ethernet cable. Wireless access point work base on the Data-link layer or layer 2.

Router

A router is a networking device that forwards data packets between computer networks or wireless router connects the integrated access point and the integrated Ethernet router internally. It is use to connected two or more data lines from different networks. Router base on the Network layer or layer 3.

TASK-2

# Task 2: Addressing

## (a)Network Address and Host Address

## (c)DHCP

DHCP is a network management protocol used on UDP/IP networks whereby a DHCP server dynamically assigns an IP address and other network configuration parameters to each device on a network so they can communicate with other IP network. The DHCP is very useful for automatic configuration of client network interfaces. When configuring the client system, the administrator chooses DHCP instead of specifying an IP address, netmask, gateway, or DNS servers.

## (b)Private IPV4 and Public IPV4 Address

A public IP address is the address that is assigned to a computing device to allow direct access over the internet. The private IP address is the address space allocated by interNIC to allow organization to create their own private network. The different between private IPV4 address and public IPV4 address is the ISPs have agreed to not route private IP addresses on the public internet. This is an artificial limitation and the private IP address ranges were rather arbitrarily chosen.

## (d)Difference between IPV4 & IPV6

The difference between IPV4 & IPV6 address. IPV4 address is written in decimal as four numbers separated by periods. Each number can be zero to 255. For example, 1.160.10.240 could be an IP address. IPV6 address are 128-bit IP address written in hexadecimal and separated by colons. An example IPV6 address could be written like this; 3ffe:1900:4545:3:200:f8ff:fe21:67cf.

## (e)Gateway

A gateway is a piece of networking hardware used in telecommunications for communications networks that allows data to flow from one discrete network to another. The term gateway can also loosely refer to a computer or computer program configured to perform the tasks of a gateway, such as a default gateway. The gateway is need for flexible and sustainable hardware platforms has lead many gateway manufacturers to produce their own ASIC technology to help meet the needs of the most modern Ethernet based networks, while also allowing old connection to legacy system and it is very useful.

## (f)Subnet mask

A subnet mask is a 32-bit number that masks an IP address, and divides the IP address into network address and host address. Subnet mask is made by setting network bits to all “1”s and setting host bit to all “0”s. We need subnet mark in network because it is used to identify network address of an IP address by performing a bitwise AND operation on the netmask.

## (g)IP Routing

TASK-3

# Task 3: Security

## (a)Three Main Security concepts

## (b)

## (c)

## (d)

## (e)

TASK-4

# Task 4: Diagram and Explanation

## (a)Logical Network Diagram

## (b)

## (c)

In the clear thinking network, I use network components such as router, switch, computer, printer and wireless access point and network cable. That will be used to create local network. Router is connected the internet service provider. Router can connect two or more data lines from different networks so I will use router. I will use switch because switch can adjust the power level and in star topology network. I use 4 switch to get a connection each room. One for Main Switch that is connected with a router by cabling. In order to get internet connection in consulting room, I use one switch for this. Consulting room’s switch is connected with 4PCs and one network printer via cable. And I connect switch to main switch. Switch for consulting room, 4 computers will use view patient information, patient records, including x-ray images and videos. One switch for reception room, 2 computers will use takes electronic payments, sends SMS reminders and emails to patients. Another switch for storage room, 2 computers will use data storage and patient records. I will use wireless access point because that can create a wireless local area network, or WLAN, usually in an office or large building. One wireless access point will be used for the break time of patients or when they want to have a rest from their daily activities through a wireless service.

## (d)Local Price and Specification of Hardware and Software

Now I will show you the price of each hardware and software.

|  |  |  |  |
| --- | --- | --- | --- |
| image | Model | Specification | Price |
|  | Acer Aspire AZ3 23.8 | Intel Quad Core i7-7700T 2.9Ghz  16GB DDR4  2TB HDD | $1,039 |
|  | LB-Link 1200AC Dual-Band | Combined 2.4GHz/5GHz speed  Wi-Fi: Supports 802.11ac | $36.99 |
|  | Plugable USB 2.0 | Switch works with any USB-enabled computer without driver-attached devices ma require drivers as usual. | $13.95 |
|  | Linksys LAPN300 Business | Integrated Power over Ethernet  Single Band (2.4GHz) and 300 Mbps speed | $99.99 |
|  | Verifone VX 520 Dual Com | Payment device work the confirm the amount and faster to calculate the amount. | $49.99 |
|  | Rongta RP326USE | 250mm/s high printing speed  Easy paper loading design | $118.99 |

TASK-5

# Task 5: Telephony

## (a)What is VOIP?

## (b)

## (c)

# CONCLUSION

In conclusion

# REFERENCE