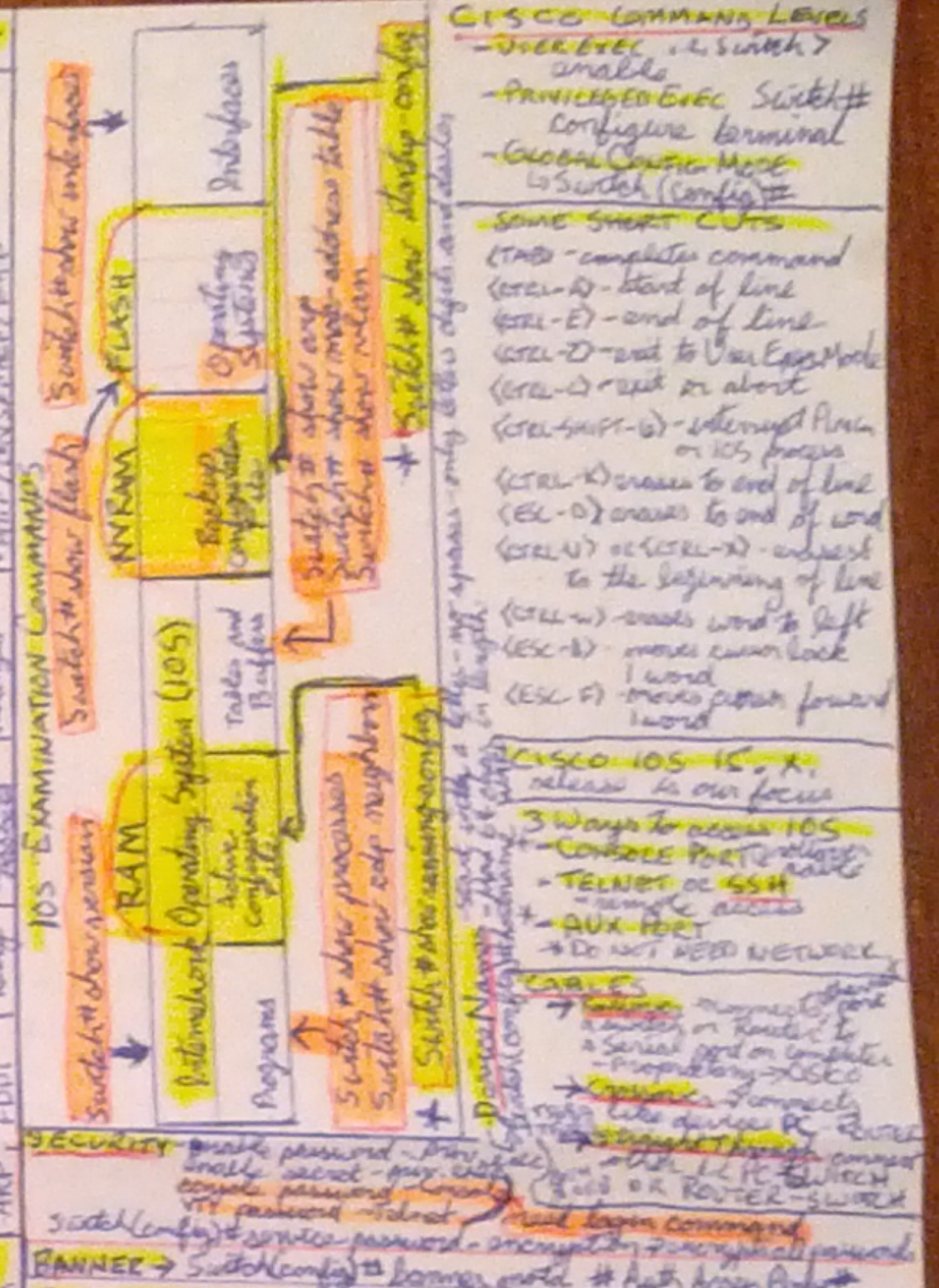
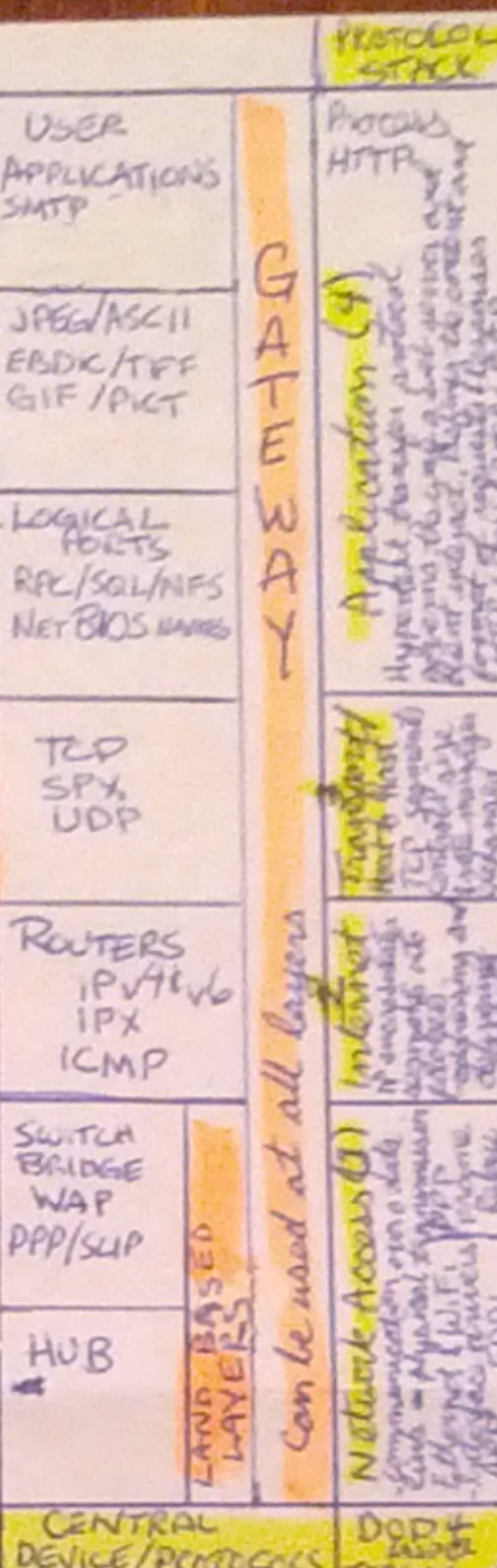


WARD NORMANDIN - CST 8103 - NETWORKING BASICS CHEAT SHEET

7	APPLICATION Serves as the window for users and application processes to access the network services	End user layer - Program opens what was sent or creates what is to be sent Resource sharing - Remote File Access - Remote printer access - Directory Services Network management	USER APPLICATIONS SMTP
6	PRESENTATION Formats the data to be presented to the application layer. It can be viewed as the "translator" for the network	Syntax layer - Encrypt & decrypt if needed Character code translation - Data Conversion - Data Compression - Data Encryption Character Set translation	JPEG/ASCII EBDF/TIFF GIF/PICT
5	SESSION Allows session establishment between processes running on different stations PDU - DATA	Synch & send to ports (Logical Ports) session establishment, maintenance and termination - Session Support - perform security, name recognition, logging, etc.	LOGICAL PORTS RPC/SOL/NFS NET BIOS NAMES
4	TRANSPORT Ensures that messages are delivered error-free, in sequence with no losses or duplications SEGMENT	TCP - Host to Host, Flow Control, Message segmentation - Message Acknowledgement - Message Traffic Control - Session Multiplexing	TCP SPX UDP
3	NETWORK Controls the operations of the subnet, deciding which physical path the data takes PACKET	Packets ("letter" - contains IP address) - Routing - Subnet Traffic Control - Frame Fragmentation - Logical-Physical address mapping - subnet usage accounting IP Address uniquely identifies and devices on a network Default Gateway - IP address of router used for network traffic to go to the local network	ROUTERS IPv4/v6 IPX ICMP
2	DATA LINK Provides error-free transfer of data frames from one node to another over the physical layer FRAME	Frames ("envelopes" contains MAC Address) End to End, NIC-to-wire-NIC Establishes and Terminates the logical link between nodes - Frame Traffic Control - Frame sequencing - Frame Acknowledgement - Frame Delimiting - Frame error checking - FC5 - Frame Check Sequence - Media Access Control LOGICAL LINK CONTROL SUB-LAYER - MAC Sub-layer LMD) arp - a - show Mac list (CMD) arp - a - clear Mac list	SWITCH BRIDGE WAP PPP/SLIP
1	PHYSICAL Concerned with the transmission and reception of the unstructured raw bit stream over the physical medium BITS	Physical Structure (Cables, hubs, etc) Data encoding - Physical medium attachment - Transmission Technique - Baseband or Broadband Physical medium transmission BITS & VOLTS Copper (100M - Max) Vs Fiber (100,000M - Max) Attenuation is the degradation/weakening of signal over a distance	HUB
#	LAYER PDU	APPLICATION / EXAMPLE	CENTRAL DEVICE / PROTOCOLS



CISCO COMMAND LEVELS
 - User EXEC (enable) < enable >
 - Privileged EXEC (Switch#) Configure terminal
 - Global Configuration Mode (Switch (config)#)
 - Some special CTS
 (TAB) - complete command
 (CTRL-D) - end of line
 (CTRL-E) - end of line
 (CTRL-Z) - end to User EXEC Mode
 (CTRL-C) - quit or abort
 (CTRL-SHIFT-Q) - interrupt Privileged EXEC process
 (CTRL-Q) - cursor to end of line
 (CTRL-O) - cursor to end of word
 (CTRL-N) or (CTRL-R) - cursor to the beginning of line
 (CTRL-W) - marks word to left
 (ESC-B) - move cursor back 1 word
 (ESC-F) - move cursor forward 1 word

MAC ADDRESS
 - unique to each NIC & Layer 2 address of OSI Model -> 6 Bytes (48 bits) in Hex - RA: 08:00:27:00:00:00
 - first 3 Bytes are unique to organization/manufacture -> last 3 bytes are NIC Specific (2: 08:00:27:00:00:00)
 - Broadcast MAC Address is FF:FF:FF:FF:FF:FF (same network) - Multicast is set to 01:00:5E: remaining bits are created by converting the lower 23 bits of the IP multicast group address into hex

SECURITY
 - enable password - Privileged EXEC shell access - only if you know the correct password (enable secret)
 - enable secret - protect the enable password - protect the enable secret
 - enable secret - protect the enable secret
 - enable secret - protect the enable secret

OSI REFERENCE MODEL
 - 7 layers: Physical, Data Link, Network, Transport, Session, Presentation, Application
 - Each layer has specific protocols and functions. For example, the Physical layer is concerned with the transmission and reception of the unstructured raw bit stream over the physical medium.
 - The Data Link layer provides error-free transfer of data frames from one node to another over the physical layer.
 - The Network layer controls the operations of the subnet, deciding which physical path the data takes.
 - The Transport layer ensures that messages are delivered error-free, in sequence with no losses or duplications.
 - The Session layer allows session establishment between processes running on different stations.
 - The Presentation layer formats the data to be presented to the application layer.
 - The Application layer serves as the window for users and application processes to access the network services.

NETWORK CONTROL PANEL (ENVI)
 - Network Control Panel (ENVI) is a tool used to manage network devices.
 - It provides a graphical interface for configuring and monitoring network devices.
 - Key features include:
 - Configuring network devices (routers, switches, etc.)
 - Monitoring network status and performance.
 - Troubleshooting network issues.
 - Managing network security.