SECR1213 NETWORK COMMUNICATION

Lab 2:
Packet Tracer Simulation (TCP and UDP) Communications

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Instruction PART 2:

Printscreen the answer from the Wireshark and indicate the answer part by using the red dotted-line box, and write the answer in the blue dialog box. An example is given in Step1(b) (delete the printscreen before start).

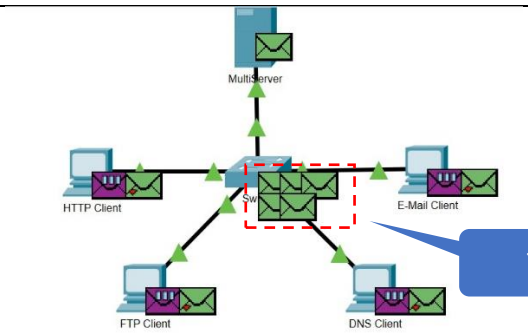
- Edit the blue dialog box by right clicking and select 'edit text'.
- Adjust the size of the red dotted-line and the dialog box according to your answer.
- Duplicate the group of shape (red dotted-line and the dialog box) for each answer.
- Make sure remain the original width of the table provided.

Once completed, convert this answer sheet into pdf format and save as <section>-<group>.pdf.
Example: 01-3A.pdf, 07-7B.pdf

PART 2: Examine Functionality of the TCP and UDP Protocols

Step1 [15m]

b)



c) Multiplexing.

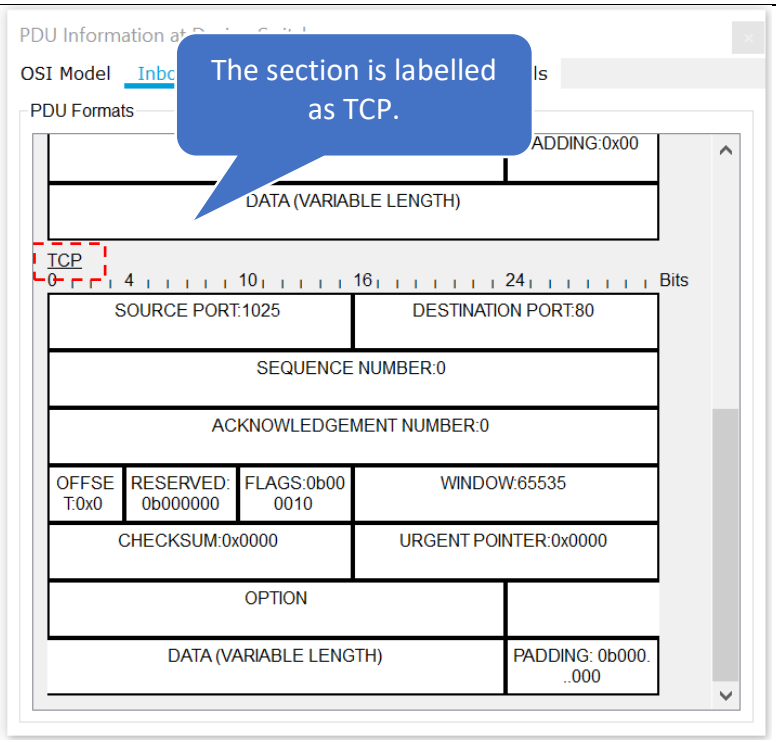
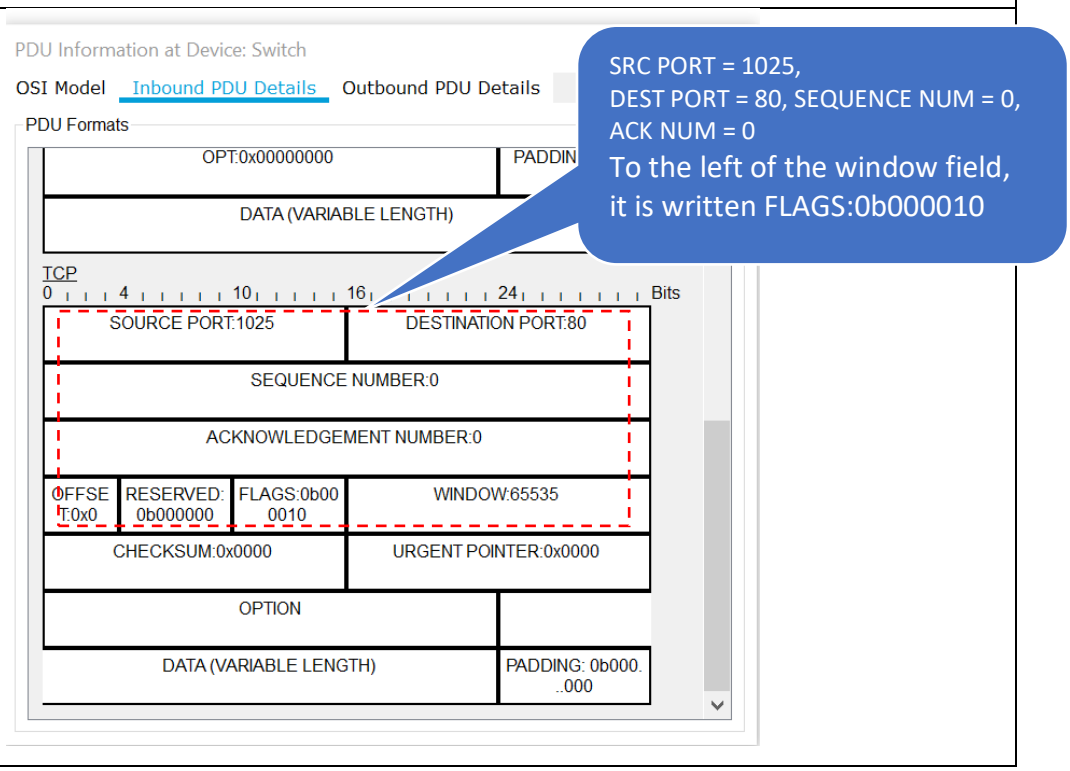
d)

Simulation Panel

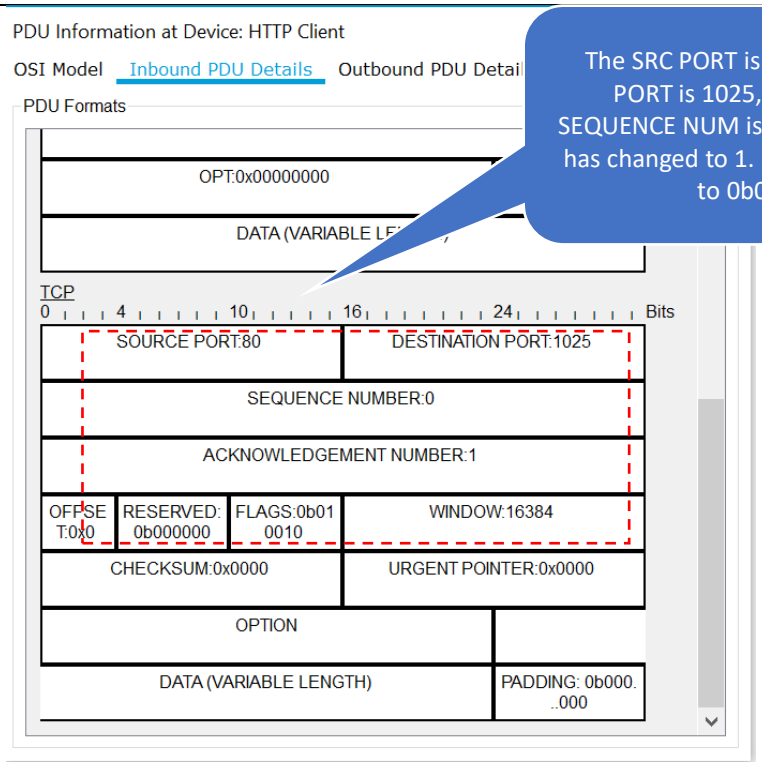
Event List

Vis.	Time(sec)	Last Device	At Device	Type
	0.005	HTTP Client	Switch	TCP
	0.005	--	HTTP C...	HTTP
	0.006	HTTP Client	Switch	HTTP
	0.006	MultiServer	Switch	TCP
	0.006	Switch	DNS Cli...	DNS
	0.006	FTP Client	Switch	TCP
	0.006	Switch	MultiSer...	TCP
	0.007	Switch	MultiSer...	HTTP
	0.007	Switch	E-Mail ...	TCP
	0.007	--	Switch	TCP
	0.007	--	E-Mail ...	SMTP
	0.008	Switch	MultiSer...	TCP
	0.008	--	E-Mail ...	SMTP
	0.008	MultiServer	Switch	HTTP
	0.008	E-Mail Cl...	Switch	TCP
	0.008	--	MultiSer...	FTP

Each colour represent different protocols.

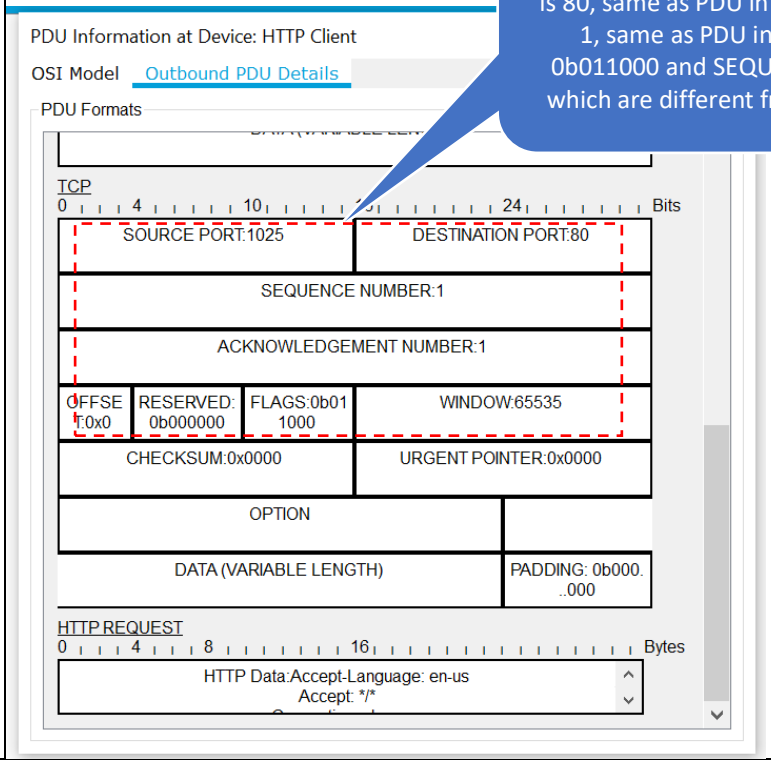
Step2 [15m]	c1)	
	c2)	Yes.
	d)	

f)

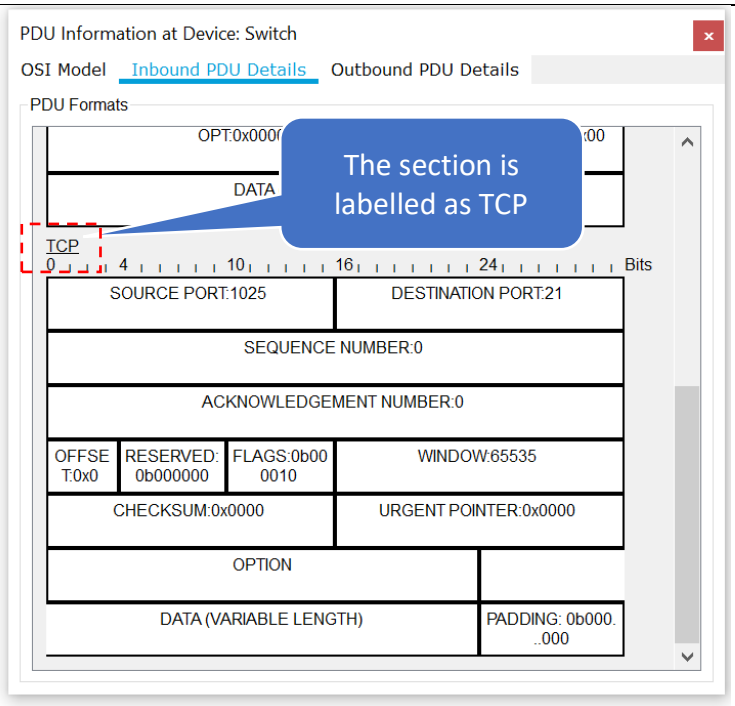
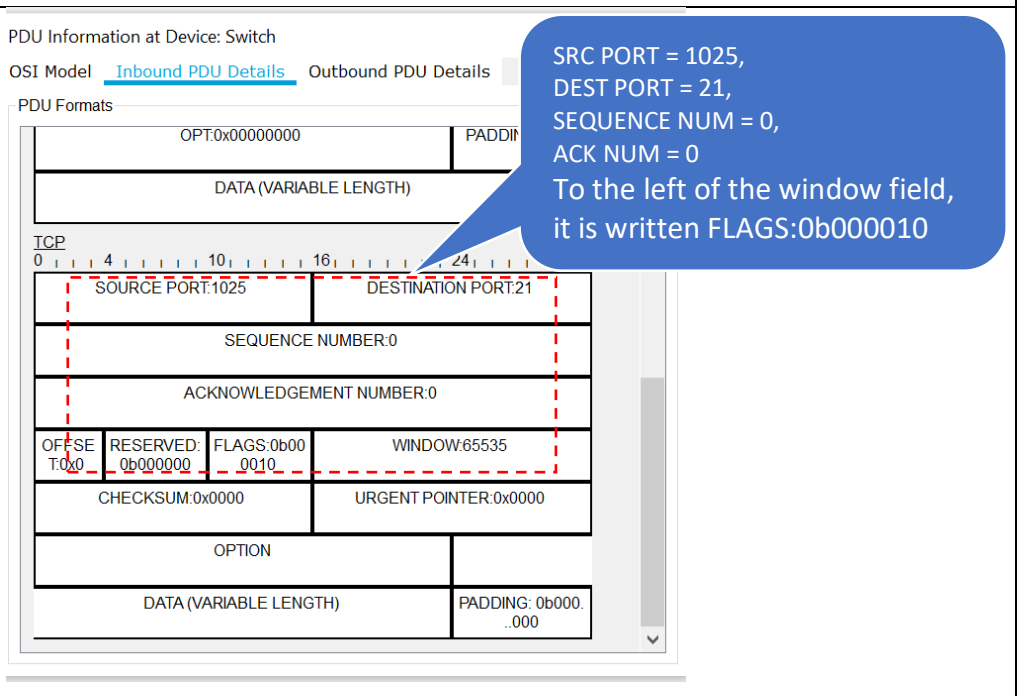


The SRC PORT is now 80 and DEST PORT is 1025, they switched. SEQUENCE NUM is still 0 but ACK NUM has changed to 1. FLAGS also changed to 0b010010.

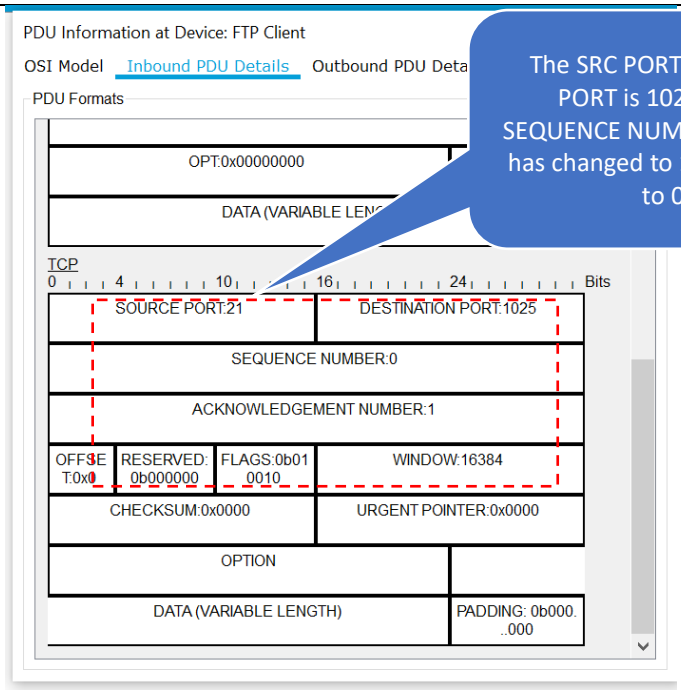
h)



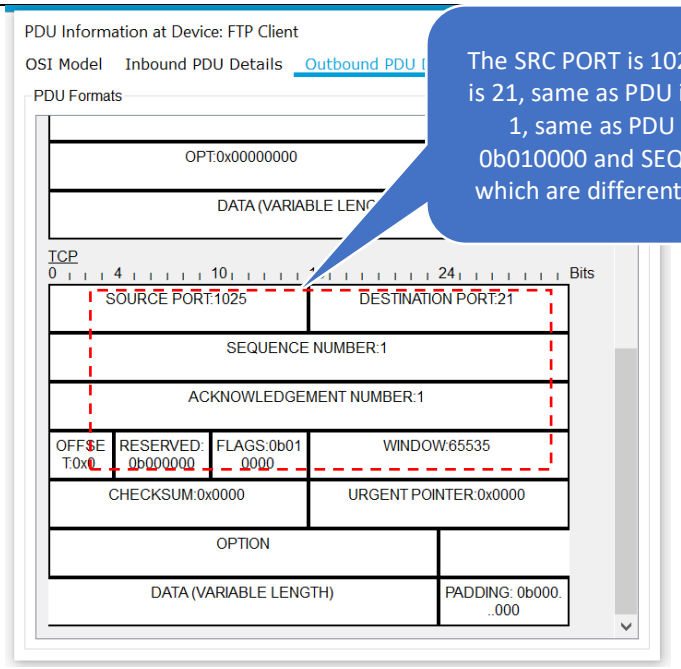
The SRC PORT is 1025 and DEST PORT is 80, same as PDU in (d). ACK NUM is 1, same as PDU in (f). FLAGS is 0b011000 and SEQUENCE NUM is 1 which are different from both PDUs.

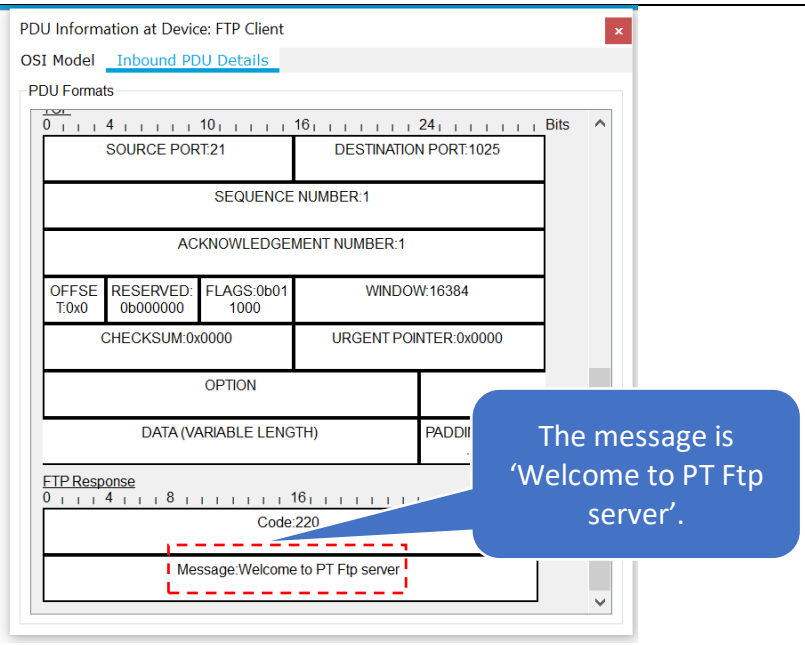
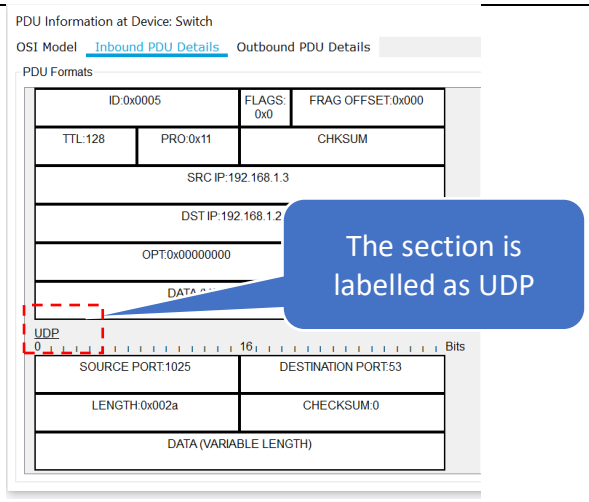
Step3 [15m]	c1)	
	c2)	Yes.
	d)	

f)

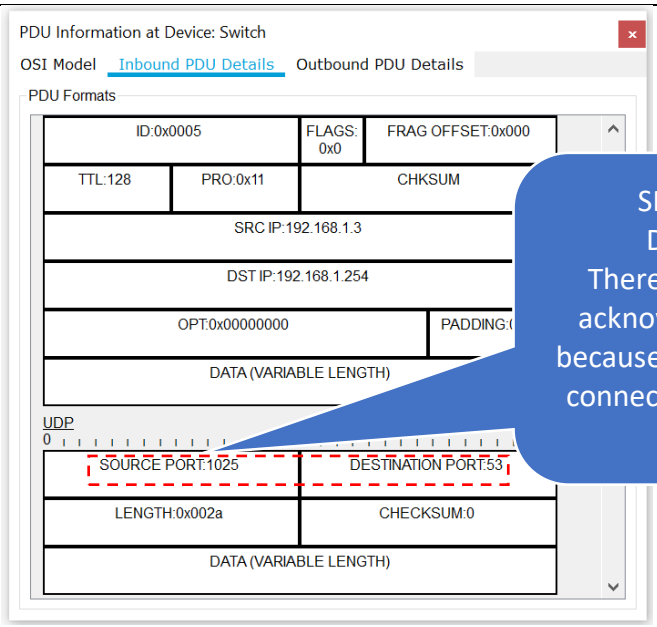

PDU Information at Device: FTP Client
OSI Model
Inbound PDU Details
Outbound PDU Deta
PDU Formats
OPT:0x00000000
DATA (VARIABLE LEN
TCP
0
4
10
16
24
Bits
SOURCE PORT:21
DESTINATION PORT:1025
SEQUENCE NUMBER:0
ACKNOWLEDGEMENT NUMBER:1
OFFSET:0x0
RESERVED: 0b000000
FLAGS:0b01 0010
WINDOW:16384
CHECKSUM:0x0000
URGENT POINTER:0x0000
OPTION
DATA (VARIABLE LENGTH)
PADDING: 0b000...000
The SRC PORT is now 21 and DEST PORT is 1025, they switched. SEQUENCE NUM is still 0 but ACK NUM has changed to 1. FLAGS also changed to 0b010010.

g)


PDU Information at Device: FTP Client
OSI Model
Inbound PDU Details
Outbound PDU
PDU Formats
OPT:0x00000000
DATA (VARIABLE LEN
TCP
0
4
10
24
Bits
SOURCE PORT:1025
DESTINATION PORT:21
SEQUENCE NUMBER:1
ACKNOWLEDGEMENT NUMBER:1
OFFSET:0x0
RESERVED: 0b000000
FLAGS:0b01 0000
WINDOW:65535
CHECKSUM:0x0000
URGENT POINTER:0x0000
OPTION
DATA (VARIABLE LENGTH)
PADDING: 0b000...000
The SRC PORT is 1025 and DEST PORT is 21, same as PDU in (d). ACK NUM is 1, same as PDU in (f). FLAGS is 0b010000 and SEQUENCE NUM is 1 which are different from both PDUs.

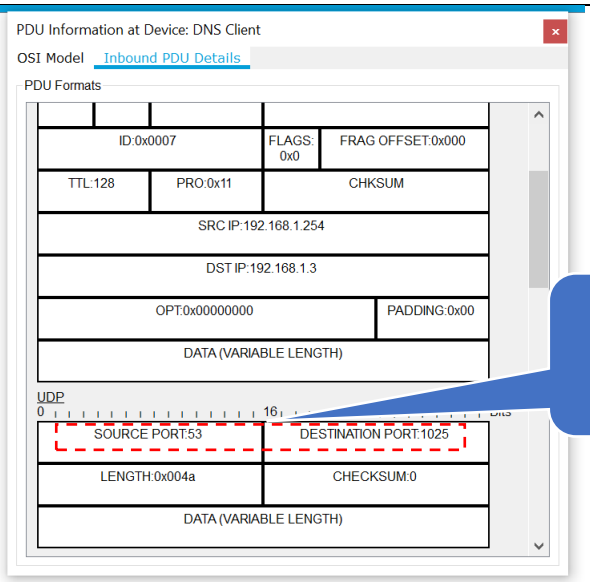
	i)	
Step4 [15m]	c1)	
	c2)	No.

d)



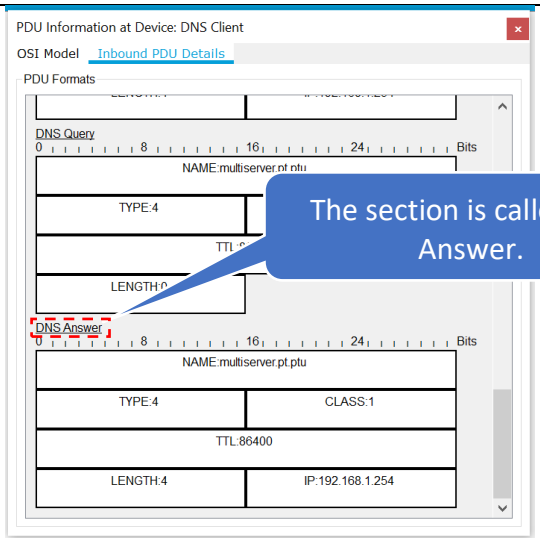
SRC PORT = 1025,
DEST PORT = 53.
There is no sequence and acknowledgement number because establishing a reliable connection is not needed for UDP.

f)

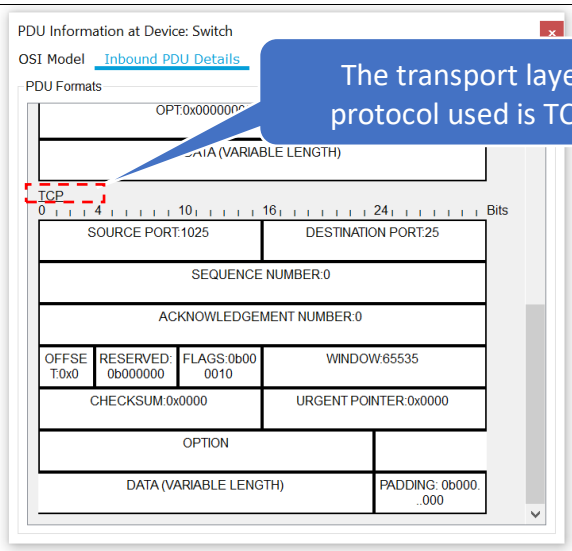
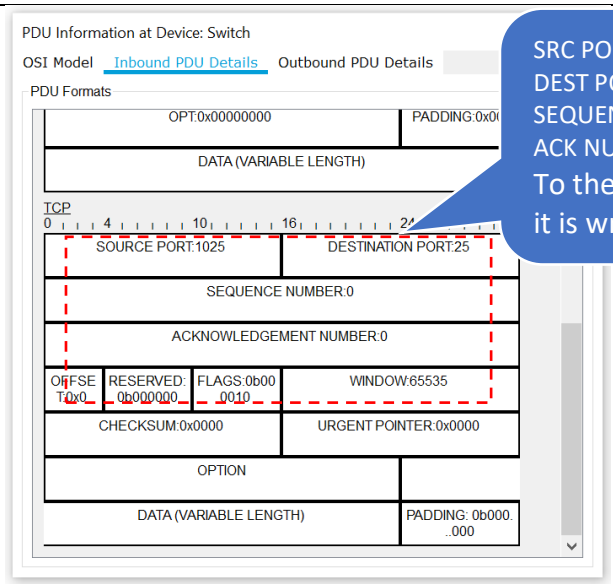
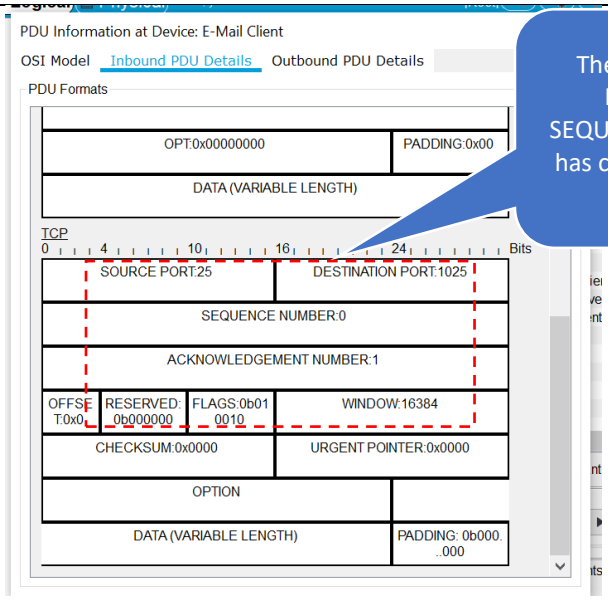


SRC PORT = 53,
DEST PORT = 1025. The number is switched.

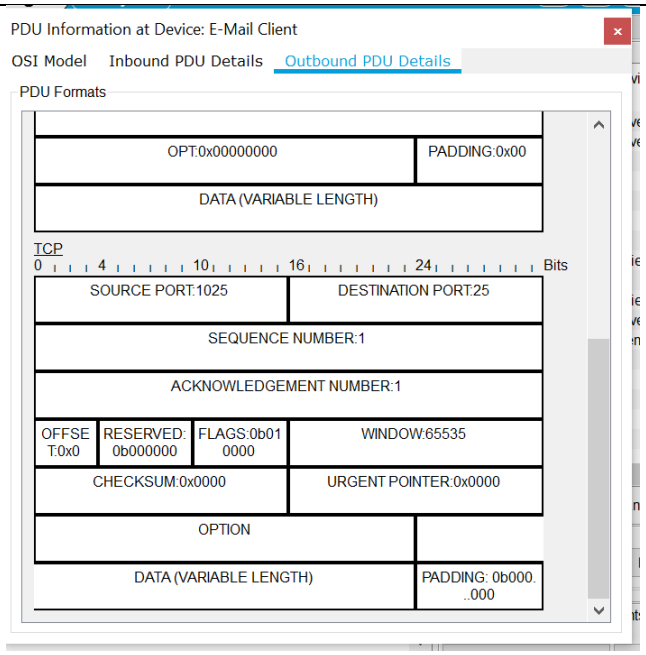
g)



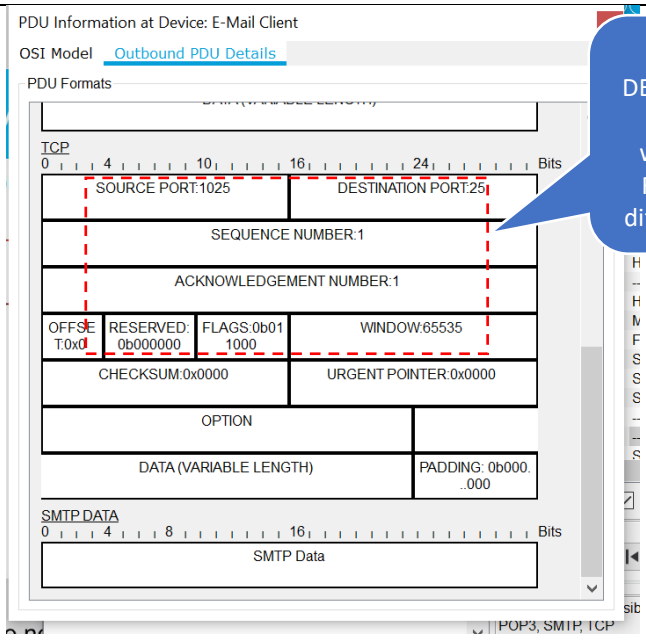
The section is called DNS Answer.

Step5 [15m]	c1)	
	c2)	Yes.
	d)	
	f)	

g)

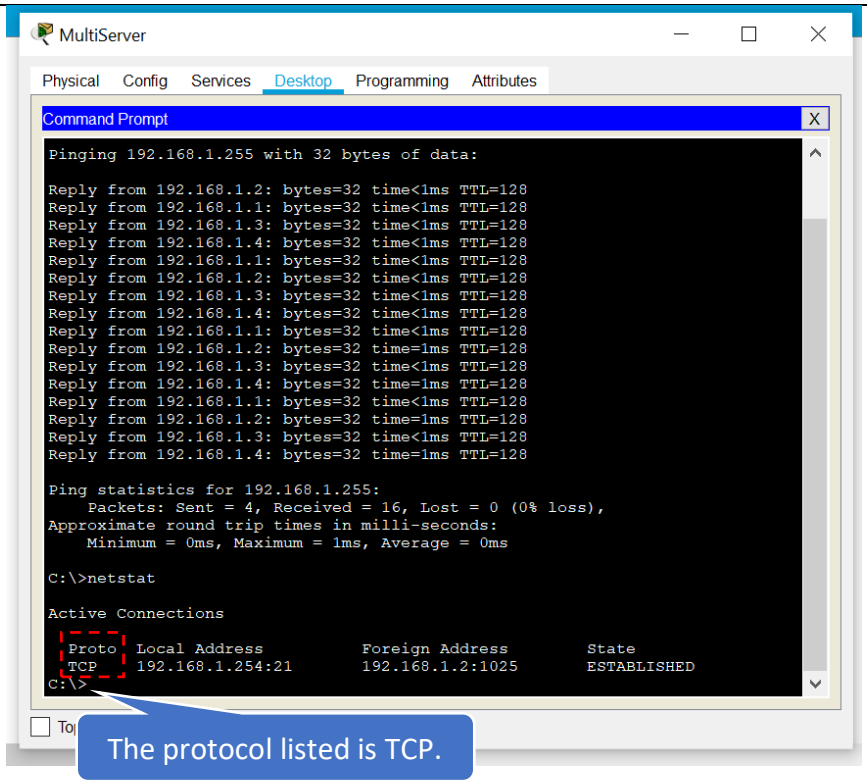
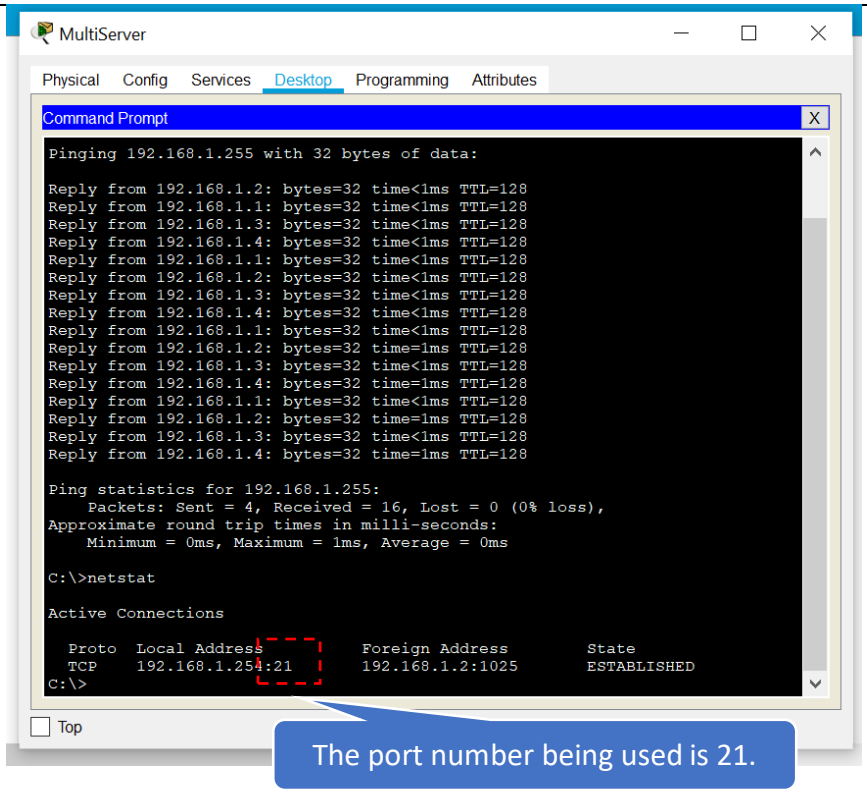


i)

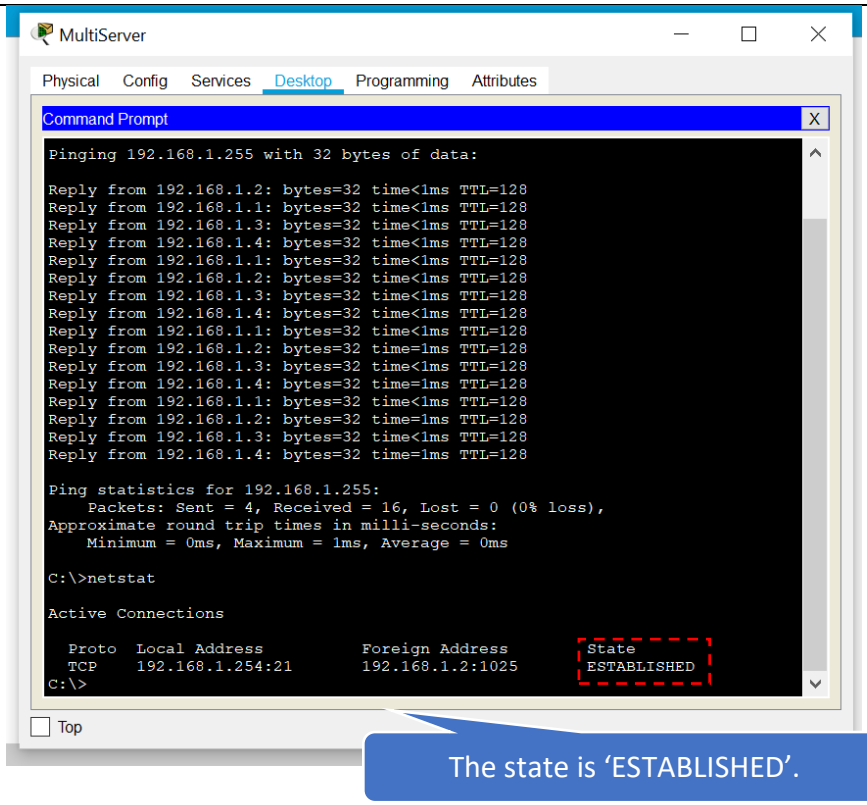


The SRC PORT is 1025 and DEST PORT is 25, ACK NUM is 1 and SEQUENCE NUM is 1 which is same as PDU in (g). FLAGS is 0b011000 which is different from the other PDUs.

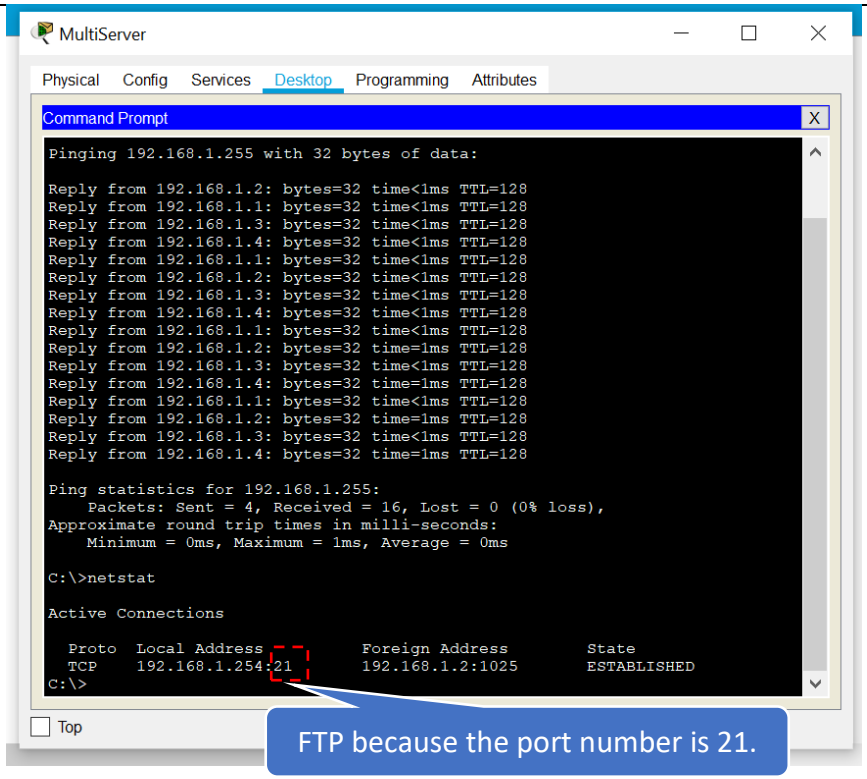
j) For TCP port 25 is SMTP, TCP port 110 is POP3.

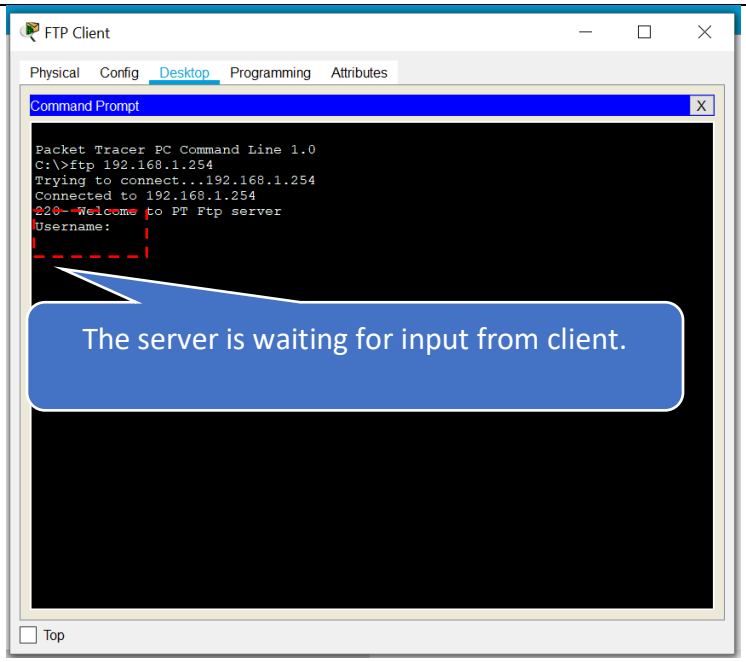
Step6 [25m]	b1)	
	b2)	

c)


MultiServer
Physical Config Services Desktop Programming Attributes
Command Prompt
Pinging 192.168.1.255 with 32 bytes of data:
Reply from 192.168.1.2: bytes=32 time<1ms TTL=128
Reply from 192.168.1.1: bytes=32 time<1ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.4: bytes=32 time<1ms TTL=128
Reply from 192.168.1.1: bytes=32 time<1ms TTL=128
Reply from 192.168.1.2: bytes=32 time<1ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.4: bytes=32 time<1ms TTL=128
Reply from 192.168.1.1: bytes=32 time<1ms TTL=128
Reply from 192.168.1.2: bytes=32 time=1ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.4: bytes=32 time=1ms TTL=128
Reply from 192.168.1.1: bytes=32 time<1ms TTL=128
Reply from 192.168.1.2: bytes=32 time=1ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.4: bytes=32 time=1ms TTL=128
Ping statistics for 192.168.1.255:
Packets: Sent = 4, Received = 16, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 1ms, Average = 0ms
C:\>netstat
Active Connections
Proto Local Address Foreign Address State
TCP 192.168.1.254:21 192.168.1.2:1025 ESTABLISHED
C:\>
Top
The state is 'ESTABLISHED'.

d1)


MultiServer
Physical Config Services Desktop Programming Attributes
Command Prompt
Pinging 192.168.1.255 with 32 bytes of data:
Reply from 192.168.1.2: bytes=32 time<1ms TTL=128
Reply from 192.168.1.1: bytes=32 time<1ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.4: bytes=32 time<1ms TTL=128
Reply from 192.168.1.1: bytes=32 time<1ms TTL=128
Reply from 192.168.1.2: bytes=32 time<1ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.4: bytes=32 time<1ms TTL=128
Reply from 192.168.1.1: bytes=32 time<1ms TTL=128
Reply from 192.168.1.2: bytes=32 time=1ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.4: bytes=32 time=1ms TTL=128
Reply from 192.168.1.1: bytes=32 time<1ms TTL=128
Reply from 192.168.1.2: bytes=32 time=1ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.4: bytes=32 time=1ms TTL=128
Ping statistics for 192.168.1.255:
Packets: Sent = 4, Received = 16, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 1ms, Average = 0ms
C:\>netstat
Active Connections
Proto Local Address Foreign Address State
TCP 192.168.1.254:21 192.168.1.2:1025 ESTABLISHED
C:\>
Top
FTP because the port number is 21.

	d2)	 FTP Client Physical Config Desktop Programming Attributes Command Prompt X Packet Tracer PC Command Line 1.0 C:\>ftp 192.168.1.254 Trying to connect...192.168.1.254 Connected to 192.168.1.254 220- Welcome to PT Ftp server Username: The server is waiting for input from client. Top