

Week 4 Quiz

Name: _____

GWID: _____

Four questions. Q1 is multiple choice; the rest are a single number. Use the Notes box under each question for your working.

Q1 What the Transport Layer Adds

IP already delivers datagrams from one host to another. What does the **transport layer** add on top of that?

- ☐ **A** It delivers data to the correct **process** on the receiving host
- ☐ **B** It chooses the route the data takes across the network
- ☐ **C** It assigns IP addresses to hosts
- ☐ **D** It moves bits across the physical link

Q2 One UDP Socket, Many Clients

You are running Wireshark on a server at **10.0.0.7**. The server runs a single **UDP** application, and the capture below is filtered to show only the traffic arriving for it. As a reminder, the **Info** column shows the source → destination ports and the packet length.

udp.dstport == 5000					
No.	Source	Destination	Protocol	Length	Info
1	192.168.10.14	10.0.0.7	UDP	73	54321 → 5000 Len=31
2	192.168.10.22	10.0.0.7	UDP	73	54321 → 5000 Len=31
3	172.16.4.9	10.0.0.7	UDP	80	61002 → 5000 Len=38
4	192.168.10.14	10.0.0.7	UDP	66	54321 → 5000 Len=24
5	172.16.4.9	10.0.0.7	UDP	80	61002 → 5000 Len=38
6	192.168.10.22	10.0.0.7	UDP	73	54321 → 5000 Len=31

How many **sockets** does that UDP application need in order to receive all of this traffic?

Sockets: _____

Notes

Q3 TCP Sockets on a Web Server

Same server, same Wireshark session, a different application — this time a **web server on port 80**. Again the capture is filtered to show only the traffic arriving for it.

tcp.dstport == 80					
No.	Source	Destination	Protocol	Length	Info
1	192.168.10.14	10.0.0.7	TCP	74	9157 → 80 [SYN] Seq=0 Win=64240 Len=0
2	172.16.4.9	10.0.0.7	TCP	74	5775 → 80 [SYN] Seq=0 Win=64240 Len=0
3	172.16.4.9	10.0.0.7	TCP	74	9157 → 80 [SYN] Seq=0 Win=64240 Len=0
4	192.168.10.14	10.0.0.7	TCP	466	9157 → 80 [PSH, ACK] Seq=1 Ack=1 Win=64240 Len=412
5	172.16.4.9	10.0.0.7	TCP	471	5775 → 80 [PSH, ACK] Seq=1 Ack=1 Win=64240 Len=417
6	172.16.4.9	10.0.0.7	TCP	463	9157 → 80 [PSH, ACK] Seq=1 Ack=1 Win=64240 Len=409

How many **sockets** does the web server have for these connections?

Sockets: _____

Notes

Q4 Ports Swap on the Reply

Host **A** sends a UDP datagram to host **B**. The datagram's header carries **source port 6428** and **destination port 9157**. The application on B reads it and sends a reply straight back to the process on A that sent it.

What **destination** port number does B's reply carry?

Destination port: _____

Notes