Exercise 1

Question 1

destination IP: 128.119.245.12
source ip: 192.168.1.102
destination port: 80
source port 1161

Question 2
Sequence number: 232129013

Question 3 & 4

Sequence Number	Time Sent	Time Received	Sample Time	Estimated Time	Length
232129013	0.026477	0.053937	0.02746	0.02746	565
232129578	0.041737	0.077294	0.035557	0.02846	1460
232131038	0.054026	0.124085	0.070059	0.03365	1460
232132498	0.054690	0.169118	0.114428	0.04374	1460
232133958	0.077405	0.217299	0.139894	0.05575	1460

Q5
win=5840
lack of server space – the win space should be dropping.
There is No throttling. Throttling happens when there is a lack of server space – and this would cause the win space to drop.

Q6
There are no retransmissions. Retransmissions happens when a server acks for a sequence number twice. It is also possible to manually check the TCP graph for retransmission.

Q7
At the beginning the server acks every packet and each packet is of size 1460. However, after around packet 67 we send two packets (total size 2920) but we only ack once.

Q8
final ack 232293103
first seq – 232129012
difference = 164091 (still need to minus one).
data = 164090

start time – 0.026477
end time – 5.455830
delta time = 5.429353

thoughput = 164090/5.429353 = 30.22 K bytes thoughput.

Ex 2

Q1
seq # - 2818463618

Q2
seq # - 1247095790
ack # - 2818463619
Server determines the seq # as random and the ack # as the seq # from client + 1

Q3
seq # - 2818463619
ack # - 1247095791
No data

Q4.
Both hosts initiated the close/Fin. This is a Simultaneous close. We know this because given that
F = FIN/ACK
A = ACK
Then:
F F A A – means that close was initiated by both hosts.   ← And this is what we see in the table
F A F A – means that close was initiated by one host.

Q5.
server to client = 33 bytes
client to server = 40 bytes