Question 1
Client IP Address = 192.168.245.12
Client Port = 1161

Question 2
Dest IP = 128.119.245.12
Dest Port = 80

Question 3
Sequence number of SYN segment = 232129012 to initiate the TCP connection.
For identification, the SYN bit is set = 1

Question 4
Sequence number of SYNACK segment = 883061785.
Acknowledgement field = 232129013.
This is determined by taking the client_isn + 1 (232129012 + 1 = 232129013)
For identification, the ACK bit = 1 and SYN bit = 1

Question 5
Sequence number of ACK segment = 232129013.
Acknowledgement field = 883061786. (again incremented from prev SYNACK sequence number)
This segment does not contain any payload / data.
For identification, the ACK bit = 1

Question 6
Sequence number of segment with POST command = 232129013.

Question 7
Using EstimatedRTT = (1 – a) * EstimatedRTT + a * SampleRTT

	Seg 1	**Seg 2**	**Seg 3**	**Seg 4**	**Seg 5**	**Seg 6**
Seq #	232129013	232129578	232131038	232132498	232133958	232135418
Time sent (from begin=0)	0.026477 sec	0.041737 sec	0.054026 sec	0.054690 sec	0.077405 sec	0.078157 sec
ACK received	0.053937 sec	0.077294 sec	0.124085 sec	0.169118 sec	0.217299 sec	0.267802 sec
RTT val (secs)	0.02746	0.035557	0.070059	0.11443	0.13989	0.18964
EstimatedRTT	0.02746 (Sample = Est)	0.0285	0.0337	0.0438	0.0558	0.0725

Question 8
Seg 1 = 565 bytes
Seg 2 = 1460 bytes
Seg 3 = 1460 bytes
Seg 4 = 1460 bytes
Seg 5 = 1460 bytes
Seg 6 = 1460 bytes

Question 9
Min buffer = 5840 bytes up to a max of 62780 bytes.
No it doesn't throttle the sender.

Question 10
There are no retransmitted segments in the file.

This can be checked by looking through all sequence numbers of the TCP segments. If there is a retransmitted segment, sequence number < prev segments sequence number.

Question 11

	Ack sequence number	Data acknowledged
ACK 1	0	565
ACK 2	232129578	1460
ACK 3	232131038	1460
ACK 4	232132498	1460
ACK 5	232133958	1460
ACK 6	232135418	1460
ACK 7	232136878	1147
ACK 8	232138025	1460

Question 12

Total data transmitted = acknowledgement seq number of last seg - seq number of 1st segment
= 232,293,103 – 232,129,012 bytes
= 164,091 bytes

Transmission time = 5.455830 (last seg #202) – 0.026477 (first seg #4) = 5.42494

Therefore, throughput = 164,091 bytes / 5.2494 seconds =~ **30223 bps**