Tcp

1. What is the IP address and TCP port number used by your client computer (source) to transfer the file to gaia.cs.umass.edu?

ans) Client computer (source)
IP address: 192.168.1.102
TCP port number: 1646

2)What is the IP address and port number used by gaia.cs.umass.edu to receive the File.
ans) Destination computer: gaia.cs.umass.edu
IP address: 128.119.245.12
TCP port number: 80

3.)What is the sequence number of the TCP SYN segment that is used to initiate the
TCP connection between the client computer and gaia.cs.umass.edu? What is it in the segment that identifies the segment as a SYN segment?

ans) Sequence number of the TCP SYN segment is used to initiate the TCP connection between the client computer and gaia.cs.umass.edu. The value is 0 in this
trace.
The SYN flag is set to 1 and it indicates that this segment is a SYN segment.

5.) what is the sequence number of the SYNACK segment sent by gaia.cs.umass.edu
to the client computer in reply to the SYN? What is the value of the ACKnowledgement field in the SYNACK segment? How did gaia.cs.umass.edu determine that value? What is it in the segment that identifies the segment as a SYNACK segment?

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v Transmission Control Protocol, Src Port: 8013, Dst Port: 80, Seq: 152898, Ack: 1, Len: 231
    Source Port: 8013
    Destination Port: 80
    [Stream index: 93]
    [Conversation completeness: Complete, WITH_DATA (31)]
    [TCP Segment Len: 231]
    Sequence Number: 152898    (relative sequence number)
    Sequence Number (raw): 554232854
    [Next Sequence Number: 153129    (relative sequence number)]
    Acknowledgment Number: 1    (relative ack number)
    Acknowledgment number (raw): 1109884181
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6.)What is the sequence number of the TCP segment containing the
HTTP POST
command? Note that in order to find the POST command, you'll need to
dig into
the packet content field at the bottom of the Wireshark window, looking
for a
segment with a "POST" within its DATA field.

ans)
The first segment is HTTP POST as shown below;
Seg. 1 has seq. 1
Seg. 2 has seq. 566
Seg. 3 has seq. 2026
Seg. 4 has seq. 3486
Seg. 5 has seq. 4946
Seg. 6 has seq. 6406

7.)What is the length (header plus payload) of each of the first four
data-carrying TCP segments?[1]

Tcp segment has a length of 231 byte and ach of them has a length of 231 bytes

8.) What is the minimum amount of available buffer space advertised to the client by gaia.cs.umass.edu among these first four data-carrying TCP segments1? Does the lack of receiver buffer space ever throttle the sender for these first four data-carrying segments?

ans) the receiver buffer size is greater than minimum so the sender is never throttled as they do not have enough buffer space

9.)Are there any retransmitted segments in the trace file? What did you check for (in the trace) in order to answer this question?

We observed and there is no duplication in the segment the source is 192.168.8.100 and destination is 28.119.254.12

10.)how much data does the receiver typically acknowledge in an ACK among the first ten data-carrying segments sent from the client to gaia.cs.umass.edu? Can you identify cases where the receiver is ACKing every other received segment (see Table 3.2 in the text) among these first ten data-carrying segments?

	acknowledged sequence number	acknowledged data
ACK 1	566	566
ACK 2	2026	1460
ACK 3	3486	1460
ACK 4	4946	1460
ACK 5	6406	1460
ACK 6	7866	1460
ACK 7	9013	1147
ACK 8	10473	1460
ACK 9	11933	1460
ACK 10	13393	1460
ACK 11	14853	1460
ACK 12	16313	1460

11.)What is the throughput (bytes transferred per unit time) for the TCP connection?
Explain how you calculated this value.

164091 bytes total, minus one, for 164090 bytes of data.

Transmitting data =5.455830 sec - 0.026477 sec

Throughput =164090/5.4294

= 30.222 kb/sec

12.)Use the *Time-Sequence-Graph(Stevens)* plotting tool to view   the sequence
number versus time plot of segments being sent from the   client to the
gaia.cs.umass.edu server. Consider the "fleets" of packets sent around $t = 0.025$, $t =$
0.053, t $= 0.082$ and $t = 0.1$. Comment on whether this looks as if TCP   is in
its slow start phase, congestion avoidance phase or some other   phase. Figure 6
shows a slightly different view of this data.

I could'nt complete the questions from 12 13 and 14