Question 1

D. 1334

The TCP sender is just about to start sending the segment. So the ACK number 436 is acknowledging receiving that first byte. So to receive the other 99 bytes the sequence number will increase up to 1334.

Question 2

The acknowledgement number will increase to expect 1335 as it is the next byte in the segment. But it will not receive it as it has received all of the expected data by the sequence number 1334. It will not get the byte at 1335.

Question 3

Smoothed RTT = 100ms (consistent)

SampleRTT = 108ms

Formula : (1 – Alpha) \* SmoothedRTTi-1 + Alpha\*SampleRTTi

(1 -0.125) \* 100 + ( 0.125\*108)

87.5 + 13.5 = 101ms

DevRTT = 1-.25 \* 20 + .25(108-100)

15 + 2 = 17

timeOut Interval:100 + 4\*17 = 168ms

Answer 2 it will increase the timeout. But also 4, whether it increases the timeout depends on the deviation. But we do not have the previous deviation to check this.

Question 5

Flow Control

Question 6

1.5 RTT

Question 7

Per-byte sequence and ack numbers

Question 8

True

Question 9

SMTP (Simple Mail Transfer Protocol): TCP is used for reliable email communication between mail servers.

HTTP (Hypertext Transfer Protocol): TCP is used for transmitting web pages and other resources between web servers and web clients (browsers).

FTP (File Transfer Protocol): TCP is used for transferring files between FTP servers and clients.

Question 10

100000/125000 = 0.8secs

0.8 seconds (C)

Question 11

4 Seconds (C)

Question 12

40 Packets / second (B)