Questions 1:

In an acknowledged connectionless network, reliable delivery can be achieved through the use of ACK and NAK transmissions. Such protocols are suited for communication over networks in which higher layers are sensitive to loss and the underlying network is inherently unreliable with a significant probability of loss or error. Unacknowledged networks provide simpler and faster communication for networks that are inherently reliable or provide service to higher layers that can tolerate information loss.

Question 2:

The probability that there are k packet arrivals in a T-second period is given by the binomial

ith parameters N = 60 and p = 0.1. The average number of arrivals is Np = 6. The erred to the first line is given by:

The remainder of the packet arrivals is sent to the second line, so the average number sent to line 2 ts per T-second period.

Question 3:

1. To exchange messages of arbitrary size, large messages must be segmented into parts of M-H bytes each in length to be transmitted in multiple PDUs. Small messages must be placed in a single PDU.
2. The peer processes need to communicate information that allows for the reassembly of messages at the receiver. For example, the first PDU may contain the message length. The last PDU may contain and end-of-message marker. Sequence numbers may also be useful to detect loss in connection oriented networks and to help in reconstruction of the messages in connectionless networks. Lastly, since variable size PDUs are permitted, the size of the PDU payload must be transmitted in the PDU header.
3. In this case, in addition to all of the header information mentioned in b, each PDU must be labeled with a stream ID, so that the receiver can treat each stream independently when reassembling messages. This stream ID may be avoided if the source and destination operate so that they handle the transfer of a single message at a time. For example, this approach is used by AAL5.

Question 5:

1. 3
2. 1