

WNMA QUESTIONS OVER THE YEARS

Physical layer

- What is the Fresnel Zone? (2023-2024)
- Fresnel Zone: General explanation with drawing. (2018-2019)

MAC layer & IEEE 802.11

- What is the "hidden terminal" problem and how to resolve it? (2022-2023)
- Hidden and Exposed terminal problems (2023-2024)
- Draw hidden terminal problem illustration (2024-2025)
- RTS/CTS (2023-2024, 2024-2025)
- DIFS and SIFS time (2023-2024)
- DCF: What is it? How does a packet exchange work? What is the difference by using CSMA/CA? (2022-2023)
- What is the contention window of MAC 802.11? What is it used for, how does it work, how is it managed? (2013-2014)

Network layer

- Routing inside MANETs in general (2021-2022)
- Explain the difference between proactive and reactive routing, and mention examples. (2013-2014)
- Talk about AODV. (2023-2024)
- Draw an example of routing inside AODV. (2023-2024)
- Compare AODV with DSDV and explain what changes. (2023-2024)
- What are the differences between AODV and DSR? (2023-2024)

Transport layer

- TCP: What is it? What are the main versions? (2022-2023)
- Show how the congestion window (cwnd) changes over time with TCP + explanation of what is represented. (2023-2024)
- He drew a graph of a congestion window and asked me to draw it again but knowing that the RTT is double (the graph grows at double speed) (2023-2024)
- Congestion window how it works, and he drew a graph and changed some parameters asking how graph changes in this case (2024-2025)
- Differences between TCP versions and determine range specific to the single case (2023-2024)
- 3 TCP charts (New Reno) (2013-2014):
 - One made by him
 - One with twice as many errors
 - One with twice as many RTTs
- Problems of wireless in TCP (2023-2024, 2024-2025)
- RTT's exact value in satellite and GEO stationary (2024-2025)
- RTT-unfairness and how TCP Hybla deals with it (2023-2024)
- Drawing about RTT and how it changes (e.g., Hybla). (2023-2024)

- What is TCP Hybla? What is it suitable for? How does it work? What are the pros and cons of using it? (2022-2023)
- What TCP protocols have we seen for satellite communications? Explain one (TCP Hybla and Westwood). (2023-2024)
- Mention a version of TCP that works with high packet errors in wireless. (2013-2014) (Answer: SACK or Snoop)
- Mention a version of TCP that works on lines with high RTTs and is fair. (2013-2014) (Answer: Hybla or Cubic)

IEEE 802.11 standards

- IEEE 802.11: What is it? What does it regulate? What are the different versions of the standard? Do they need to be able to interact? (2022-2023)

Ad-hoc & Vehicular Networks

- What is an ad-hoc network? Draw one and show how the routing between 2 nodes works. (2023-2024)
- What are VANETs, what is special about nodes and needs? (2013-2014)
- Talk about VANET + which protocol we saw in class? (2023-2024)
- Vehicular Networks: General explanation and parameters defined by the standard. (2018-2019)
- Vehicular Networks Transmission Range (2023-2024)

Bluetooth

- What is Bluetooth? (2022-2023)
- What is a piconet/scatternet? (2023-2024)
- Draw a scatternet and talk about it. (2023-2024)

Possible graphs that may be asked

