1. What are the challenges faced by multiple access mechanism?
2. List three strategies used to coordinate a multiple channel access and briefly describe their functions
3. What are the advantages of using a static channel allocation?
4. What is the main task of MAC protocols?
5. List and describe three main categories of MAC protocols for wireless networks
6. List and describe three main categories of MAC protocols for V2X networks
7. List two requirements of MAC protocols imposed by the highly dynamic nature of V2X networks
8. Explain how the pure ALOHA protocol works
9. Derive the efficiency of pure ALOHA protocol
10. Show that the maximum efficiency of pure ALOHA is 1/2e. Hint: $\lim_{N\to\infty}(1-\frac{1}{N})^N = 1/e$
11. A group of N vehicles shares a 6 Mbit/s pure ALOHA channel. Each vehicle generates at a constant rate of 800-byte packet every 100 msec. What is the maximum value of N?
12. How does the slotted ALOHA protocol work?
13. Derive the efficiency of slotted ALOHA protocol
14. Show that the maximum efficiency of slotted ALOHA is 1/e. Hint: $\lim_{N\to\infty}(1-\frac{1}{N})^N = 1/e$
15. A small slotted ALOHA system has N customers, each of whom has a probability $p = \frac{1}{N}$ of transmitting during any slot (both new and retransmission). What is the channel throughput as a function of N? Evaluate this expression numerically for $N = 2, 4, 10, 100, 200$ and $N \to \infty$
16. List three reservation-based MAC Protocols
17. Explain how the time division multiple access (TDMA) works
18. What are the main limitations of TDMA?
19. How does the frequency division multiple access (FDMA) work?
20. What are the main limitations of FDMA?
21. What is the cause of frequency shifts in V2X networks?
22. Give a brief comparison between TDMA and FDMA
23. How does the code division multiple access (CDMA) work?

24. Give a main limitation of CDMA
25. How does the closed-loop power control used in CDMA work?
26. Give an example highlighting the CDMA coding
27. How does the carrier sense multiple access (CSMA) work?
28. How are priorities of different frame types modeled in IEEE 802.11p?
29. Consider a V2X network consisting of two stations A and B having each one single packet to send which belongs to access categories AC_VI and AC_VO, respectively. After the busy channel becomes clear, station A and B draw a CW of 1 and 3, respectively. Calculate the channel access time observed by both stations. Assume a time slot $T_{slot} = 13\mu s$. Both stations are within the same communication range.
30. Why does the CW is doubled after each packet/ACK collision in unicast transmissions?
31. Why does the CW never be doubled in broadcast transmissions?
32. Explain the hidden- and exposed terminal problem
33. How is the hidden terminal problem solved in unicast transmission?