1. How does the cellular network work?
2. What is the motivation behind frequency division duplex (FDD) and time division duplex (TDD)?
3. What is the role of multiple access scheme in cellular networks?
4. Provide a simplified architecture of the three generations of cellular network
5. What is the task of the base station controller (BSC)?
6. What is the main task of the radio network controller (RNC)?
7. Which duplexing technique is used by GSM?
8. How many communication channels could be achieved with GSM-900 (900 MHz band)?
9. What is the main motivation behind GPRS (General Packet Radio Service)?
10. What is the difference between circuit switching and packet switching?
11. Which multiple access technology is used by UMTS?
12. How does LTE provide voice services to mobile phones?
13. What is the motivation behind the device-to-device (D2D) communication?
14. List the two main techniques used by D2D for coverage extension?
15. Briefly explain how relaying work in D2D
16. What is the difference between inband and outband D2D communication?
17. What the task of Proximity based Services (ProSe)?
18. List the main challenges of D2D
19. List some scenarios where the device synchronization might be challenging
20. How does D2D mode selection can be achieved?
21. How does D2D deal with the interference problem?
22. List the two radio interfaces proposed by C-V2X
23. What is the difference between mode 3 and mode 4 for C-V2X communication?
24. What resource management algorithm is used in C-V2X mode 4?
25. How does sensing-based semi-persistent scheduling (SPS) work?
26. What is the motivation of using a reselection counter in SPS?

27. Why is the packet latency bounded in SPS?
28. Briefly explain the dilemma while dimensioning the selection window in SPS
29. How do packet losses occur with the semi-persistent scheduling (SPS)?
30. List the three main transmission errors which can occur in mode 4
31. List the two categories of resource management algorithm used in C-V2X mode 3
32. How does C-V2X decentralized congestion control work?
33. List the main challenges faced by the C-V2X network