

1. Describe FDMA, TDMA, and CDMA.
2. Describe and compare TDD and FDD.
3. Compare Cellular and Low Power PCS.
4. Describe and compare NCHO, MCHO, and MAHO.
5. What is soft handoff? What is hard handoff? Compare soft handoff with hard handoff.
6. Describe how the round-trip time and jitter are derived or estimated in RTP.
7. Describe how the “One Number” service can be implemented by using the SIP protocol.
8. In the SIP protocol, what are the differences among “Via”, “Record-route” and “Route” headers?
9. What is common channel signaling? What is call associated signaling? What is the advantage of common channel signaling over call associated signaling?
10. Describe SS7 Network Architecture. (Nodes and Links)
Describe the function of SS7 nodes.
11. In SS7 Protocols, which protocols are for routing?
Which protocols are for call setup?
Which protocols are for database access?
12. Describe the SS7 Call Setup message flow including one originating switch and one terminating switch.
13. Describe IMSI, TMSI, MSRN and MSISDN in GSM. How do you use these numbers?
14. Describe the GSM Call Origination Procedure from the radio aspect.

15. Describe GSM Registration Procedure.
16. Describe GSM Call Setup Procedure from a handset to another handset.
17. Describe the Authentication and Encryption procedures in GSM.
18. Describe the three types of information stored in HLR. Describe the HLR failure restoration in GSM specification. What is the drawback of this HLR failure restoration procedure?
19. Describe the VLR failure restoration in terms of MS registration, MS call origination and MS call termination.
20. Describe when a GSM call to a handset will become two international calls. Show the message flow.
21. What is tromboning in the international roaming for GSM? Describe two different approaches to resolve this tromboning effect.
22. What is number portability? Describe three types of number portability. Which kind of number portability is affected by the numbering plan?
23. Describe four approaches for fixed-network number portability. If you are Chung-Hwa Telecom, which approach you prefer other operators to use? Why? If you are new operator, which approach you prefer? Why?
24. What are the differences between fixed-network number portability and mobile number portability?
25. Describe two different call-termination approaches to support mobile number portability.