Course : Mobile Radio Communication System

Name :_____

Please use this answer sheet

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
a															
b															
c															
d															

	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
a															
b															
c															
d															

<u>Post-Test</u>

Please select the most reasonable choice for each question.

1. Which choice is false about the characteristics of the received signal?
    a. Inversely proportional to the distance between base station and mobile station
    b. Proportional to the frequency
    c. Proportional to the height of the base station antenna
    d. Proportional to the height of the mobile station antenna
2. Which choice is not the multipath propagation mechanisms that impact the wave?
    a. Reflection   b. Shadowing
    c. Interference   d. Scattering
3. What is true about Doppler effect?
    a. Doppler shift increase signal bandwidth
    b. Frequency decreases when moving towards the base station
    c. Frequency increases when moving away from the base station
    d. Doppler shift depends on the velocity of mobile station only, not the angle of movement
4. The summary about Rayleigh fading and Rician fading is
    a. Rayleigh fading occurs when no dominant path, but Rician fading occurs when there is a dominant path.
    b. Rician fading provides superior performance to Rayleigh fading because the dominant path significantly reduces the depth of fading
    c. Large cell typically exhibit Rayleigh Fading while micro cell exhibit Rician Fading
    d. All of above
5. What is incorrect about the diversity scheme?
    a. Provide many inputs that their fast-fading characteristics are uncorrelated to the receiver.
    b. Space Diversity on BTS antenna requires small separation because it is high enough to detect the MS signal.
    c. Example of frequency diversity is "Frequency hopping"
    d. Example of multipath diversity is "Rake Receiver"
6. The combining technique that sums the received signal from all diversity branches without weighed is
    a. Maximal-Ratio Combining
    b. Equal-Gain Combining
    c. Selection Combining
    d. Switched Combining
7. The method to transfer a digital bit stream over an analog carrier by varying the phase of carrier is
    a. PSK
    b. FSK
    c. PM
    d. ASK

8. The main characteristic of CPM is
    a. Phase of current symbol depends on phase of previous symbol
    b. Constant amplitude
    c. Use Gaussian pulse shape
    d. a and b
9. "Users co-allocated in time and frequency but each user has a private code" is the concept of
    a. SSMA
    b. CDMA
    c. FDMA
    d. TDMA
10. What is incorrect about "Co-channel Interference" ?
    a. It is the interference between signals from neighbor cell that use the same frequency.
    b. To reduce, the co-channel cells should be separated by a minimum distance to provide sufficient isolation
    c. Increasing the carrier power of a transmitter also reduces the co-channel interference
    d. The co-channel distance is proportional to signal-to-interference ratio (C/I)
11. "Near-Far Effect" can be reduced by
    a. Channel Assignment
    b. Frequency Reuse
    c. Power Control
    d. Trunking Theory
12. The main idea of Frequency Reuse is
    a. To increase system capacity
    b. To reduce adjacent channel interference
    c. To separate the cell that use the same set of frequencies by distance large enough to keep interference levels within tolerable limits
    d. a and c
13. Giving the average traffic during busy hour is 0.05 Erlangs / 1 subscriber, and 10 channel with blocking=2% are available. Using the data in Erlang B table, the number of subscriber that can be served is
    a. 101
    b. 102
    c. 1010
    d. 1011
14. What is the main purpose of Cell Sectoring?
    a. Increase coverage area
    b. Increase system capacity
    c. Replace a single omni-directional antenna by several directional antennas
    d. b and c

15. What is not the common concept about physical channel of NMT and AMPS ?
    a. One physical channel is one carrier frequency
    b. CCH are require for call setup, channel assignment, paging, maintenance message
    c. TCH are require for voice
    d. Combined control/traffic channel is used
16. The new infrastructures in GSM compared to the analog FDMA system are
    a. MSC, BSC, HLR
    b. BSC, HLR, AUC
    c. BTS, MSC, BSC
    d. BSC, AUC, MSC
17. During call setup in GSM, which channel is used?
    a. SDCCH
    b. SACCH
    c. FACCH
    d. BCCH
18. Which node handles the handover process between cells in different BSC but same MSC?
    a. MSC
    b. BSC
    c. BTS
    d. AUC
19. Why the coverage of DCS1800 is much smaller than GSM(900) ?
    a. Different infrastructures
    b. Different technology
    c. DCS1800 carrier frequency is much higher than GSM(900)
    d. b and c
20. What is the common concept of HSCSD and GPRS ?
    a. Channel will be allocated when needed and released immediately after transmit the packets
    b. Multiple full-rate TCHs can be parallel used to provide higher data rates
    c. Packet Switching
    d. No common concept between them
21. The reasonable comparison of GSM node and GPRS node is
    a. SGSN = HLR
    b. SGSN = GMSC
    c. SGSN = MSC/VLR
    d. GGSN = MSC/VLR
22. What are the main changes in EDGE compared to GSM ?
    a. New infrastructure
    b. New transceiver type in BTS that support new modulation 8-PSK
    c. New Core Network Architecture
    d. all of above

23. In IS-95, what are the code that identify user in uplink and downlink?
   a. Uplink => Walsh code, Downlink => PN short code
   b. Uplink => PN long code, Downlink => PN short code
   c. Uplink => PN long code, Downlink => Walsh code
   d. Uplink => Walsh code, Downlink => PN long code
24. The split architecture in WCDMA is first introduced in
   a. release 99
   b. release 4
   c. release 5
   d. release 6
25. The different between Iu-CS and Iu-PS interface in WCDMA is
   a. Iu-CS connect RNC to circuit switch, Iu-PS connect RNC to packet switch
   b. Iu-CS connect RNC to packet switch, Iu-PS connect RNC to circuit switch
   c. Iu-CS connect Node-B to circuit switch, Iu-PS connect Node-B to packet switch
   d. Iu-CS connect Node-B to packet switch, Iu-PS connect Node-B to circuit switch
26. The node which collects the usage data of IP user in CDMA2000 is
   a. AAA server
   b. PDSN
   c. Home Agent
   d. MSC
27. How does HSDPA reduce round-trip delay of IP packets?
   a. Add a new node between RNC and Node B to do scheduling for retransmission
   b. Use a new retransmission mechanism in RNC
   c. Moving Automatic Repeat Request functionality, scheduling and priority handling
      to Node B
   d. b and c
28. What is false about HSPDA?
   a. Co-exist with WCDMA
   b. Additional channel coding scheme – 16QAM
   c. New Node B functionality
   d. The same terminal in WCDMA rel'99 can be used as HSPDA terminal
29. WiMAX is less susceptible to interference because using
   a. OQPSK
   b. 16QAM
   c. OFDM
   d. 64QAM
30. In WiMAX which node provides the connectivity to 3G Network?
   a. CSN-IWU
   b. ASN-GW
   c. BS
   d. AAA Server

Answer

1. b
2. c
3. a
4. d
5. b
6. b
7. a
8. d
9. b
10. c
11. c
12. d
13. a
14. b
15. d
16. b
17. a
18. a
19. c
20. b
21. c
22. b
23. c
24. b
25. a
26. a
27. c
28. d
29. c
30. a