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**Completed on** Wednesday, 20 March 2024, 10:30 AM

**Time taken** 1 hour

Question **1**

Complete

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1.00

Which of the following technologies is essential for VoLTE operation on LTE networks?

- ☐ a. MIMO (Multiple Input Multiple Output)
- ☒ b. OFDM (Orthogonal Frequency Division Multiplexing)
- ☐ c. Carrier Aggregation
- ☐ d. IMS (IP Multimedia Subsystem)

Question **2**

Complete

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Determine the signal-to-interference ratio (SIR) in dB, for path loss  $\eta = 3$  and  $i = 2$ ,  $j = 1$ . There are six co-channel cells in cellular system.

- ☐ a. 16.03 dB
- ☐ b. None of these
- ☒ c. 4.5 dB
- ☐ d. 12.05 dB

Question **3**

Complete

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A spectrum of 30 MHz is allocated to a cellular system which uses two 25 KHz simplex channels to provide full duplex voice channels. What is the number of channels available per cell for 3 cell reuse factor?

- ☐ a. 300 channels
- ☒ b. 200 channels
- ☐ c. None of these
- ☐ d. 150 channels

Question **4**

Complete

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What is the primary advantage of OFDM in wireless communication systems?

- ☐ a. Reduced power consumption
- ☒ b. Increased spectral efficiency
- ☐ c. Simplified receiver design
- ☐ d. Lower latency

Question **5**

Complete

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1.00

In the link design analysis the power received path loss is not a function of

- ☒ a. None of these
- ☐ b. Distance between the transmitter and receiver
- ☐ c. Antenna Gain
- ☐ d. Transmitter power

Question **6**

Complete

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If a user is in a voice call and also want to use his/her data connection uninterruptedly then which network will be preferred

- ☐ a. LTE
- ☒ b. VoLTE
- ☐ c. None of these

Question **7**

Complete

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What is the typical communication technique between cluster heads and the cluster nodes in LEACH?

- ☐ a. Frequency division multiple access (FDMA)
- ☒ b. Code division multiple access (CDMA)
- ☐ c. Time division multiple access (TDMA)
- ☐ d. Spatial division multiple access (SDMA)

Question **8**

Complete

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The uplink and downlink frequency channels of GSM are separated by

- ☐ a. 50 MHz
- ☒ b. 45 MHz
- ☐ c. 25 MHz
- ☐ d. None of these

Question **9**

Complete

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1.00

Which of the statement is incorrect among the following

- ☒ a. UTMS networks has both circuit and packet switched element.
- ☐ b. UTMS networks has a circuit switched element.
- ☐ c. UTMS networks has a circuit switched element.
- ☐ d. None of these

Question **10**

Complete

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1.00

The number of sensor nodes in an Adhoc network is more than in a Wireless Sensor Network

- ☐ a. True
- ☒ b. False

Question **11**

Complete

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1.00

For a roaming user who is visiting a new MSC, the IMSI (International Mobile Subscriber Identity) will be temporarily stored in \_\_\_\_\_

- ☐ a. All of these
- ☐ b. AuC (Authentication Center)
- ☐ c. HLR (Home Location Register)
- ☒ d. VLR (Visitor Location Register)

Question **12**

Complete

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1.00

Determine the capacity of a cellular system, with cluster size  $N = 7$  where each cell is allocated a group of 60 channels and replication factor  $M = 4$ .

☐ a. None of these

- ☒ b. 1680
- ☐ c. 1480
- ☐ d. 1600

Question **13**

Complete

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1.00

A network of five mobile phones for data sharing is created using Bluetooth, what is the operating frequency of this network

- ☒ a. 2.4 GHz
- ☐ b. None of these
- ☐ c. 5 GHz
- ☐ d. 200 MHz

Question **14**

Complete

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What is the purpose of the guard interval in OFDM?

- ☒ a. To guard against Inter Symbol Interference (ISI)
- ☐ b. To protect against frequency-selective fading
- ☐ c. To provide security
- ☐ d. To increase the data rate

Question **15**

Complete

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1.00

What does GSM stand for?

- ☒ a. Global System for Mobile Communications
- ☐ b. General System for Mobile Connectivity
- ☐ c. Global Standard for Mobile Devices
- ☐ d. Global System for Mobility

Question **16**

Complete

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Which of the following is not a phase in the LEACH protocol?

- ☐ a. Setup phase
- ☐ b. Data collection phase
- ☐ c. Steady-state phase
- ☒ d. Cluster formation phase

Question **17**

Complete

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1.00

An unauthorized access of information from a wireless device through a Bluetooth connection is called

---

- ☐ a. Blueprint
- ☒ b. Bluesnarfing
- ☐ c. Bluestring
- ☐ d. None of these

Question **18**

Complete

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In LEACH, what technique is used to reduce energy consumption during data transmission?

- ☐ a. Spatial division multiple access (SDMA)
- ☐ b. Frequency division multiple access (FDMA)
- ☐ c. Time division multiple access (TDMA)
- ☒ d. Code division multiple access (CDMA)

Question **19**

Complete

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In a cellular system, the capacity pf the system is directly proportional to

- ☒ a. Number of times a cluster is replicated
- ☐ b. Number of cells
- ☐ c. Number of Base stations
- ☐ d. None of these

Question **20**

Complete

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1.00

The Radio Frequency Identifier tag needs Line of Sight (LoS) communication to be scanned by the Radio Frequency Identifier reader?

- ☒ a. False
- ☐ b. True

Question **21**

Complete

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1.00

What is full form of UMTS?

- ☐ a. Universal Mobile Telephonic Server
- ☐ b. Universal Mobile Telephonic System
- ☐ c. Universal Mobile Telecommunication Server
- ☒ d. Universal Mobile Telecommunications System

Question **22**

Complete

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1.00

Which of the following statement is incorrect

- ☐ a. In OFDM (Orthogonal Frequency Division Multiplexing), the ICI (Inter-carrier-Interference) and ISI (Inter-Symbol-Interference) problem is less.
- ☒ b. In OFDM (Orthogonal Frequency Division Multiplexing), the PARP (Peak to average power ratio) is less.
- ☐ c. None of these
- ☐ d. OFDM (Orthogonal Frequency Division Multiplexing) provides a high spectral efficiency and data rate.

Question **23**

Complete

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1.00

An Radio Frequency Identifier (RFID) system, consists of how many components

- ☐ a. Two
- ☒ b. Three
- ☐ c. Four
- ☐ d. One

Question **24**

Complete

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1.00

Which of the following is responsible for the transmission and reception of radio signals in UTRAN?

- ☐ a. Node B
- ☐ b. Home Location Register (HLR)
- ☐ c. Radio Network Controller (RNC)
- ☒ d. Serving GPRS Support Node (SGSN)

Question **25**

Complete

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Which entity in the GPRS architecture is responsible for the mobility management of users?

- ☐ a. Serving GPRS Support Node (SGSN)
- ☐ b. Gateway GPRS Support Node (GGSN)
- ☐ c. Mobile Station (MS)
- ☒ d. Base Transceiver Station (BTS)

Question **26**

Complete

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1.00

The Signaling Correction Control Part (SS7) protocol supports the interface between the BSC and MSC.

- ☐ a. False
- ☒ b. True

Question **27**

Complete

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1.00

The barcodes needs Line of Sight (LoS) communication to be scanned by the barcode reader?

- ☐ a. False
- ☒ b. True

Question **28**

Complete

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Wireless networks are same as computer networks, that uses radio frequency channels as their \_\_\_\_\_ for communication.

- ☐ a. Media access control
- ☐ b. CDMA
- ☒ c. Physical media
- ☐ d. TDMA

Question **29**

Complete

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1.00

The uplink and downlink frequency bands of cellular GSM system are

- ☐ a. Uplink 935-960 MHz, Downlink 890-915 MHz
- ☐ b. None of these
- ☒ c. Uplink 890-915 MHz, Downlink 935-960 MHz
- ☐ d. Uplink 1710-1785 MHz, Downlink 1805-1880 MHz

Question **30**

Complete

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1.00

Determine the distance between nearest co-channel cells of a cellular system for  $i = 1, j = 2$  and cell radius 2 m

- ☐ a. 7.75
- ☐ b. 10.00
- ☐ c. 4.59
- ☒ d. 9.16



Question **31**

Complete

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1.00

Which of the following statement is incorrect?

- ☐ a. In soft handoff, the existing connection with the Base Station (BS) must be broken before establishing a connection with a new BS.
- ☐ b. In hard handoff, the existing connection with the Base Station (BS) must be broken before establishing a connection with a new BS.
- ☐ c. In soft handoff, a new connection is established before the old one is released.
- ☒ d. In hard handoff, the mobile unit simultaneously remain connected to more than one Base Station (BS).

Question **32**

Complete

Marked out of  
1.00

What type of network topology does LEACH create in wireless sensor networks?

- ☒ a. Clustered
- ☐ b. Ring
- ☐ c. Star
- ☐ d. Mesh

Question **33**

Complete

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1.00

Why is a cyclic prefix required in Orthogonal Frequency Division Multiplexing?

- ☐ a. None of these
- ☐ b. To ensure symbol time is an integer number
- ☒ c. To help overcome Inter Symbol Interference (ISI)
- ☐ d. To maintain orthogonality

Question **34**

Complete

Marked out of  
1.00

What is a cluster in cellular system?

- ☒ a. A group of cells
- ☐ b. A small geographic area
- ☐ c. A large group of mobile systems
- ☐ d. A group of subscribers

Question **35**

Complete

Marked out of  
1.00

Which one of the following is not a characteristic of ADHOC network?

- ☐ a. Dynamic changing topology
- ☐ b. Energy-constrained
- ☒ c. Fixed infrastructure
- ☐ d. No fixed infrastructure

Question **36**

Complete

Marked out of  
1.00

**In an AMPS cellular operator, there are 355 channels of 33 KHz each in a bandwidth of 12.5 MHz. If a narrowband TDMA system is used with frame duration 40 ms, with 8 time slots per frame, duration of time slot that carries data is 4.25 ms, then calculate the spectral efficiency of the TDMA system.**

- ☒ a. 94%
- ☐ b. 80%
- ☐ c. 100%
- ☐ d. None of these

Question **37**

Complete

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1.00

How does OFDM mitigate the effects of frequency-selective fading?

- ☒ a. By using differential encoding
- ☐ b. By employing frequency-hopping
- ☐ c. By utilizing cyclic prefix
- ☐ d. By employing error correction coding

Question **38**

Complete

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1.00

To avoid cell dragging which parameters has to carefully handled

- ☐ a. Transmitting power of Base Station (BS)
- ☐ b. Distance between the BS and the mobile unit
- ☒ c. Handoff threshold
- ☐ d. Both transmitting power of BS and distance between the BS and the mobile unit

Question **39**

Complete

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1.00

What is the primary difference between 4G LTE and 4G VoLTE networks?

- ☐ a. LTE operates on different frequency bands than VoLTE
- ☒ b. LTE provides higher data speeds, while VoLTE provides better voice quality
- ☐ c. LTE uses circuit-switched technology, while VoLTE uses packet-switched technology
- ☐ d. LTE focuses on data transmission, while VoLTE focuses on voice calls

Question **40**

Complete

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1.00

What is the typical communication pattern between cluster heads and the base station in LEACH?

- ☐ a. Unicast
- ☐ b. Multicast
- ☒ c. All of these
- ☐ d. Broadcast

Question **41**

Complete

Marked out of  
1.00

Which multiple access technology is used in LTE?

- ☐ a. OFDMA
- ☒ b. TDMA
- ☐ c. CDMA
- ☐ d. FDMA

Question **42**

Complete

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Which of the following is not a component of the UMTS core network?

- ☐ a. Serving GPRS Support Node (SGSN)
- ☐ b. Home Location Register (HLR)
- ☐ c. Gateway GPRS Support Node (GGSN)
- ☒ d. Base Transceiver Station (BTS)

Question **43**

Complete

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1.00

The Adhoc network is a centralized type of network

- ☒ a. False
- ☐ b. True

Question **44**

Complete

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1.00

Which of the statement is incorrect among the following

- ☐ a. None of these
- ☐ b. The PCU (Packet Control Unit) in GPRS directs the circuit switched data to GPRS network and packet switched data to standard GSM network.
- ☐ c. The PCU (Packet Control Unit) in GPRS directs only the packet switched data to GPRS network.
- ☒ d. The PCU (Packet Control Unit) in GPRS directs the circuit switched data to standard GSM network and packet switched data to GPRS network.

Question **45**

Complete

Marked out of  
1.00

Which feature of GPRS enables more efficient use of network resources compared to traditional GSM?

- ☐ a. Voice call prioritization
- ☐ b. Dedicated communication paths for data transfer
- ☒ c. Circuit-switched data transmission
- ☐ d. Always-on connectivity

Question **46**

Complete

Marked out of  
1.00

The interface between an mobile user and its nearest base transceiver station is

- ☐ a. A Interface
- ☒ b. Air Interface
- ☐ c. Abis Interface
- ☐ d. None of these

Question **47**

Complete

Marked out of  
1.00

The 5G technology uses

- ☐ a. None of these
- ☐ b. Microwave
- ☐ c. Infrared wave
- ☒ d. Millimeter wave

Question **48**

Complete

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1.00

In a dense urban environment, path loss exponent  $\eta = 3$  and there are six number of co-channel cells in cellular system. The minimum required signal to interference ratio is **12.05 dB**. Determine the smallest cluster size needed to maintain this minimum required .

- ☐ a. 4
- ☒ b. 1
- ☐ c. 7
- ☐ d. 3

Question **49**

Complete

Marked out of  
1.00

What frequency band is commonly used for UMTS deployments?

- ☐ a. 2600 MHz
- ☐ b. 800 MHz
- ☐ c. 1800 MHz
- ☒ d. 2100 MHz

Question **50**

Complete

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1.00

If the distance between co-channel cells are  **$D$**  and the cell radius is  **$R$** , then the co-channel reuse ratio is given by

- ☐ a.  $D/R^2$
- ☐ b.  $D \cdot R$
- ☐ c.  $D^2/R$
- ☒ d.  $D/R$

Question **51**

Complete

Marked out of  
1.00

What is the maximum number of timeslots used for GPRS in the GSM frame structure?

- ☐ a. 12
- ☐ b. 4
- ☒ c. 8
- ☐ d. 16

Question **52**

Complete

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1.00

Among the following which is not a part of Base Station Subsystem (BSS)

- ☐ a. Mobile Switching Centre (MSC)
- ☐ b. Base Station Controller (BSC)
- ☒ c. Base Transceiver Station (BTS)
- ☐ d. Mobile Station (MS)

Question **53**

Complete

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1.00

A base station (BS) is transmitting with a power of 75 watt at frequency  $f_c = 915$  MHz, the distance between the BS and the receiver mobile unit is 50 m. Calculate the power received in dBm by the mobile unit considering free space propagation, where both the transmitting and receiving antenna has unit gain.

- ☒ a.  $-16.89$  dBm
- ☐ b.  $2.046 \times 10^{-2}$  dBm
- ☐ c. None of these
- ☐ d.  $16.89$  dBm

Question **54**

Complete

Marked out of  
1.00

In the link design analysis, the received power is not a function of

- ☒ a. Doppler shift
- ☐ b. Transmitter power
- ☐ c. Antenna gain
- ☐ d. Path loss

Question **55**

Complete

Marked out of  
1.00

What is the typical communication technique between cluster heads and the base station in LEACH?

- ☒ a. Code division multiple access (CDMA)
- ☐ b. Frequency division multiple access (FDMA)
- ☐ c. Time division multiple access (TDMA)
- ☐ d. Spatial division multiple access (SDMA)

Question **56**

Complete

Marked out of  
1.00

For a roaming user who is visiting a new MSC, the IMSI (International Mobile Subscriber Identity) will be temporarily stored in .....

- ☐ a. None of these
- ☐ b. HLR (Home Location Register)
- ☒ c. VLR (Visitor Location Register)
- ☐ d. AUC (Authentication Center)

Question **57**

Complete

Marked out of  
1.00

Which of the following statement is incorrect about microcell zone concept?

- ☐ a. No loss in trunking efficiency
- ☒ b. More number of handoffs
- ☐ c. Reduced interference
- ☐ d. Increase in capacity

Question **58**

Complete

Marked out of  
1.00

Among the following which is not a part of Network Switching Subsystem (NSS)

- ☐ a. Base Transceiver Station (BTS)
- ☐ b. Authentication Center (AUC)
- ☐ c. Operation Support Subsystem (OSS)
- ☒ d. Mobile Switching Centre (MSC)

Question **59**

Complete

Marked out of  
1.00

Which of the statement is correct among the following

- ☐ a. UTMS networks has a packet switched element.
- ☐ b. UTMS networks has a circuit switched element.
- ☒ c. UTMS networks has both circuit and packet switched element.
- ☐ d. None of these

Question **60**

Complete

Marked out of  
1.00

Why the shape of cell in a cellular system is hexagonal not circle?

- ☒ a. Overlapping regions or gaps are left
- ☐ b. Complex design
- ☐ c. Omni directionality
- ☐ d. None of these

Question **61**

Complete

Marked out of  
1.00

What is the use of an Radio Frequency Identifier module?

- ☐ a. To provide 3G Connectivity
- ☐ b. To monitor temperature
- ☒ c. Object Identification
- ☐ d. To measure the Wi-Fi strength

Question **62**

Complete

Marked out of  
1.00

In a MACA protocol, a neighbor node near the receiver upon hearing the CTS (clear to send) packet

- ☐ a. All of these
- ☐ b. may initiates its data transmission process as per the requirement
- ☒ c. will refrain from its transmission till the receiver receives the entire data packet
- ☐ d. will send RTS (request to send) packet to the transmitter/sender



Question **63**

Complete

Marked out of  
1.00

What is the purpose of the Base Station Controller (BSC) in GSM?

- ☒ a. Managing handovers between cells
- ☐ b. Providing Internet connectivity
- ☐ c. Encoding voice signals
- ☐ d. Processing billing information

Question **64**

Complete

Marked out of  
1.00

In MACA protocol, a neighboring node near the sender which receives RTS (request to send) packet

- ☒ a. will delay the transmission it receives the CTS packet
- ☐ b. will delay the transmission for long enough time so that the sender could receive the CTS packet from the destined receiver
- ☐ c. will not transmits till it receives the data packet
- ☐ d. will transmit RTS-CTS packets as per the requirements

Question **65**

Complete

Marked out of  
1.00

Among them which one is not a multicarrier modulation technique

- ☐ a. None of these
- ☒ b. OFDM (Orthogonal Frequency Division Multiplexing)
- ☐ c. GFDM (Generalized Frequency Division Multiplexing)
- ☐ d. CDMA (Code Division Multiple Access)

Question **66**

Complete

Marked out of  
1.00

GPRS (General Packet Radio Service) is an example of

- ☐ a. 3 G
- ☒ b. 2.5 G
- ☐ c. 2 G
- ☐ d. 1 G

Question **67**

Complete

Marked out of  
1.00

What is the LTE technology used for VoLTE (Voice over LTE)?

- ☐ a. Voice over IP (VoIP)
- ☒ b. Single Radio Voice Call Continuity (SRVCC)

- ☐ c. Circuit-switched fallback (CSFB)
- ☐ d. None of these

Question **68**

Complete

Marked out of  
1.00

An Radio Frequency Identifier (RFID) reader, consists of how many components?

- ☐ a. One
- ☒ b. Three
- ☐ c. Four
- ☐ d. Two

Question **69**

Complete

Marked out of  
1.00

In MACA protocol, which of the following packet avoids hidden terminal problem

- ☐ a. ACK
- ☒ b. CTS (clear to send)
- ☐ c. None of these
- ☐ d. RTS (request to send)

Question **70**

Complete

Marked out of  
1.00

Find the value of frequency reuse factor  $Q$  of a cellular system for  $i = 0, j = 2$

- ☐ a. 5.75
- ☐ b. 6.25
- ☒ c. 3.46
- ☐ d. 4.58

Question **71**

Complete

Marked out of  
1.00

A Bluetooth enabled wireless device supports

- ☐ a. None of these
- ☐ b. point-to-multipoint communication
- ☐ c. point-to-point communication

- ☒ d. both point-to-point and point-to-multipoint communication

Question **72**

Complete

Marked out of 1.00

Which of the following is a characteristic of MANET (Mobile Ad hoc Network)?

- ☐ a. High data throughput
- ☐ b. Fixed network infrastructure
- ☒ c. Mobility of nodes
- ☐ d. Centralized control

Question **73**

Complete

Marked out of 1.00

What is the primary advantage of GPRS compared to traditional GSM?

- ☐ a. Greater coverage range
- ☒ b. Higher voice quality
- ☐ c. Faster data transmission
- ☐ d. Longer battery life

Question **74**

Complete

Marked out of 1.00

In Orthogonal Frequency Division Multiplexing, the guard interval is provided to

- ☐ a. To maintain orthogonality
- ☐ b. None of these
- ☒ c. To eliminate Inter Symbol Interference (ISI)
- ☐ d. To attain high symbol rate

Question **75**

Complete

Marked out of 1.00

The interface between the UTRAN (UMTS Terrestrial Radio Access Network) and the CN (Core Network) is

- ☒ a. Iu interface
- ☐ b. Iur interface
- ☐ c. None of these
- ☐ d. Iub interface

Question **76**

Complete

Marked out of  
1.00

Which of the statement is incorrect among the following

- ☐ a. The A5 algorithm is used to provide the scrambling for the 114 coded data bits sent in each time slot.
- ☐ b. The A3 ciphering algorithm is used to authenticate each mobile by verifying the user passcode within the SIM with the cryptographic key.
- ☒ c. All of these
- ☐ d. A3 is a ciphering algorithm used to provide scrambling of coded data bits but A5 is not an ciphering algorithm.

Question **77**

Complete

Marked out of  
1.00

In MAHO, what does the mobile station (MS) measure to determine neighboring cells?

- ☐ a. Transmission power
- ☐ b. Timing advance
- ☐ c. Carrier frequency offset
- ☒ d. Received signal strength indicator (RSSI)

Question **78**

Complete

Marked out of  
1.00

Determine the capacity of a cellular system, with cluster size  $i = 1, j = 1$  where each cell is allocated a group of 60 channels and replication factor  $M = 6$ .

- ☐ a. 720
- ☐ b. None of these
- ☒ c. 1080
- ☐ d. 1680

Question **79**

Complete

Marked out of  
1.00

In a closed room environment with several scattered objects, a signal is going to fade due to

- ☐ a. None of these
- ☐ b. Both small and large scale fading
- ☐ c. Small scale fading
- ☒ d. Large scale fading

Question **80**

Complete

Marked out of  
1.00

The coverage area of a cellular system is 2400 sq km. Each hexagonal cell having a radius of 4.806 km. There are total 500 radio channels allocated for the cellular system. Calculate the system capacity (**C**) for cluster size **N** = 4.

- ☐ a. 5000
- ☐ b. 1000
- ☐ c. 1600
- ☒ d. 4000

Question **81**

Complete

Marked out of  
1.00

In cellular system, neighboring stations are assigned different group of channels to

- ☐ a. maximize capacity of each cell
- ☒ b. minimize interference
- ☐ c. maximize throughput
- ☐ d. minimize area coverage

Question **82**

Complete

Marked out of  
1.00

Which of the following is a feature of VoLTE but not necessarily of LTE?

- ☒ a. Support for high-definition (HD) voice calls
- ☐ b. Carrier aggregation
- ☐ c. Multi-user MIMO (Multiple Input Multiple Output)
- ☐ d. Enhanced voice codecs

Question **83**

Complete

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1.00

A spectrum of 60 MHz is allocated to a wireless cellular system which uses 50 KHz of duplex channel for communication. For cluster size  $N = 7$  and replication factor  $M = 4$ , calculate the total capacity offered by the cellular system.

- ☐ a. None of these
- ☒ b. 4800
- ☐ c. 4200
- ☐ d. 4400

Question **84**

Complete

Marked out of  
1.00

What parameter in LEACH determines the probability of a node becoming a cluster head?

- ☐ a. Node density
- ☐ b. Residual energy of a node
- ☐ c. All of these
- ☒ d. Transmission power

Question **85**

Complete

Marked out of  
1.00

The frequency range of IEEE 802.11b standard is

- ☐ a. 5 GHz
- ☒ b. 2.4 GHz
- ☐ c. 5 Gbps
- ☐ d. 2.4 Gbps

Question **86**

Complete

Marked out of  
1.00

The UMTS is based on \_\_\_\_\_ multiple access technique.

- ☐ a. FDMA
- ☒ b. CDMA
- ☐ c. TDMA
- ☐ d. SDMA

Question **87**

Complete

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1.00

What defines an Ad-hoc network?

- ☐ a. A network with a fixed topology
- ☒ b. A network that operates without any infrastructure
- ☐ c. A network with centralized control
- ☐ d. A network that relies solely on wired connections



Question **88**

Complete

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1.00

In an AMPS cellular system, is allocated with 12.5 MHz for each simplex channel, the guard band at the two edges of the allocated band is 6 KHz, and the channel spacing for each user is 25 KHz. Find the total number of channels available in the FDMA system and the total numbers of users can be supported by the system.

- ☐ a. 250 channels, 500 users
- ☐ b. 500 channels, 250 users
- ☒ c. 500 channels, 500 users
- ☐ d. 250 channels, 250 users

Question **89**

Complete

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1.00

Which one of the following statement is correct?

In hidden terminal problem,

- ☒ a. Two sender nodes are in the communication range of each other
- ☐ b. None of these
- ☐ c. Two sender nodes are not in the communication range of each other
- ☐ d. Hidden terminal problem is independent of node's communication range

Question **90**

Complete

Marked out of  
1.00

In OFDM (Orthogonal Frequency Division Multiplexing), a set of different subcarriers overlapping in frequency domain. However, these subcarriers are

- ☐ a. designed to be in  $\pm 135^\circ$  phase shift with each other.
- ☐ b. None of these
- ☒ c. designed to be in  $\pm 90^\circ$  phase shift with each other
- ☐ d. designed to be in  $\pm 180^\circ$  phase shift with each other.

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