1) What does LTE stand for?

A) Level Telecom Advanced

B) Long Terminal Advanced

C) Long Term Evolution

D) Long Time Evolution

2) Though LTE is treated as a 4G (Fourth Generation) network, it is a ___ generation technology as it does not meet expectations.

A) 2.5G

B) 3G

C) 3.5G

D) 3.9G

3) What is the DL Access technique used by an LTE or LTE-A network?

A) WCDMA

B) FDMA

C) PDMA

D) OFDMA

4) What does OFDMA stand for?

A) Original Frequency Division Multiple Access

B) Orthogonal Frequency Division Multiple Access

C) Omitted Frequency Division Multiple Access

D) None

5) What is the carrier Bandwidth in a typical 3G WCDMA based network?

A) 1.4 Mhz

B) 3MHz

C) 5 MHz

D) 10 MHz

6) The Air interface or Radio interface of a 4G LTE network is ____ as a 3G network.

A) Same

B) Not same

7) ITU stands for ___.

A) International Television Union

B) Internal Telecommunication Union

C) Inventions for Telecommunication Union

D) International Telecommunication Union

8) IMT-A (International Mobile Telecommunications Advanced) is _____.

A) LTE-A (LTE Advanced)

B) The system that implements specifications of ITU-R(ITU Radiocommunication)

C) Also known as 4.5G

D) All the above

9) What is the name of a Base Transceiver Station in 2G system equivalent in a 4G LTE system?

A) nodeB

B) eNodeB

C) aNodeB

D) nodeBPro

10) The Evolution-Data Optimized Voice (EVDV) based 4G networks are according to ___ standards. (3GPP / 3GPP2)

A) 3GPP

B) 3GPP2

11) What is the other name for a 3GPP2 based 4G network?

A) Super Mobile Broadband (SMB)

B) Advanced Mobile Broadband (AMB)

C) Ultra Mobile Broadband (UMB)

D) None

12) UMB 4G networks are superseded by ___ networks.

A) EV-DV networks

B) LTE

C) WCDMA

D) None

13) What does WIMAX stands for?

A) Wireless Maximum

B) Wireless Intermediate Microwave Access

C) Wireless Interoperability for Microwave Access

D) None

14) What are the advantages of a 4G LTE network over 3G network?

A) More Spectral Efficiency

B) Low power consumption

C) Scalability and Flexibility with other networks

D) All the above

15) What does MIMO stand for?

A) Minimum Interference Maximum Output

B) Minimum Input Multiple Output

C) Multiple Input Multiple Output

D) None

16) What is the round trip latency between a Mobile phone and Base station in a 4G LTE network?

A) 1ms

B) 5ms

C) 10ms

D) 20ms

17) What does AAS represent in a UMB (Ultra Mobile Broadband) based 4G network?

A) Antenna Average System

B) Advanced Antenna System

C) Analog Amplitude System

D) None

18) What is the name given to a 4G LTE or UMB based Core Network Architecture?

A) SAE (System Architecture Evolution)

B) SAP (System Architecture Pro)

C) CAS (Core System Architecture)

D) None

19) What are the differences between FDM and OFDM?

A) FDM uses Guard bands. OFDM does not need Guard bands.

B) FDM transmits data in a big channel. OFDM transmits chunks of data through a group of small channels.

C) FDM is sensitive to Multipath effects and Noise. In OFDM, only very few Sub-channels are affected by Noise and Multipath diversity.

D) All the above

20) Initial 4G LTE standard supported Carrier Aggregation. State TRUE or FALSE.

A) TRUE

B) FALSE

---

1. Which UE category supports 64 QAM on the uplink?

a) Only category 5

b) Only category 4

c) Only category 3

d) Category 3,4 and 5

2. What type of handovers is supported by LTE?

a) Hard handover only

b) Soft handover only

c) Hard and soft handover

d) Hard, soft and softest handover

3. What is the minimum amount of RF spectrum needed for an FDD LTE radio channel?

a) 1.4 MHz

b) 2.8 MHz

c) 5 MHz

d) 20 MHz

4. Which organization is responsible for developing LTE standards?

a) UMTS

b) 3GPP

c) 3GPP2

d) ISO

5. Which channel indicates the number of symbols used by the PDCCH?

a) PHICH

b) PDCCH

c) PBCH

d) PCFICH

6. How often can resources be allocated to the UE?

a) Every symbol

b) Every slot

c) Every subframe

d) Every frame

7. What is the largest channel bandwidth a UE is required to support in LTE?

a) 10 MHz

b) 20 MHz

c) 1.4 MHz

d) 5 MHz

8. In LTE, what is the benefit of PAPR reduction in the uplink?

a) Improved uplink coverage

b) Lower UE power consumption

c) Reduced equalizer complexity

d) Improved uplink coverage, lower UE power consumption and reduced equalizer

9. Which RLC mode adds the least amount of delay to user traffic?

a) Unacknowledged mode (UM)

b) Acknowledged mode (AM)

c) Low latency mode (LM)

d) Transparent mode (TM)

10. How much bandwidth is required to transmit the primary and secondary synchronization signals?

a) 1.08 MHz

b) 1.4 MHz

c) 930 kHz

d) 20 MHz

Questions

1. In LTE, OFDM transmission is described in

A. Release 8

B. Release 9

C. Release 10

2. Flexible bandwidth assignment in LTE supports

A. TDMA

B. FDMA

C. TDMA and FDMA

3. A resource block in LTE has

A. A bandwidth of 180 kHz and a duration of 0.5 ms

B. A bandwidth of 15 kHz and a duration of 0.5 ms

4. The advantage of DFTS-OFDM over OFDM is

A. Having higher spectrum efficiency

B. Reducing cubic metric for uplink transmission and enabling higher terminal power amplifier efficiency

5. The advantage of OFDM over DFTS-OFDM is

A. Having higher spectrum efficiency

B. Reducing cubic metric for uplink transmission and enabling higher terminal power amplifier efficiency

6. LTE is

A. A circuit switching system

B. A packet switching system

C. A packet and circuit switching system

7. The number of packets required to perform hybrid ARQ with soft combining is

A. Two or more packets

B. One packet

8. In inter-cell interference coordination ICIC two neighboring base stations cannot use the same frequency bands to communicate with a terminal

A. True

B. False

9. The number of packets required to perform hybrid ARQ is

A. Two or more packets

B. One packet

10. At a low SINR scenario, multiple antennas should be used as

A. MIMO

B. Receive and transmit diversity

11. At a high SINR scenario, multiple antennas should be used as

A. MIMO

B. Receive and transmit diversity

15. LTE supports different bandwidths on both uplink and down link (1MHz to 20 MHz). •On the contrary WCDMA requires a bandwidth of 5MHz and HSPA requires a bandwidth of multiples of 5 MHz.

A. True

B. False

16. A terminal position can be determined by measuring special reference signals transmitted regularly from different cell sites. This feature is introduced in

A. LTE release 8

B. LTE release 9

C. LTE release 10

17. IMT-Advanced is fulfilled in

A. LTE release 8

B. LTE release 9

C. LTE release 10

18. LTE-Advanced consists of ,up to, _____release 8 aggregated carriers.

A. Four

B. Five

C. Six

D. Seven

19. LTE-Advanced can provide peak data rate of _____ for uplink and _____ for downlink

A. 3 Gbit/s 1.5 Gbit/s

B. 1 Gbit/s 500 Mbit/s

C. 30 Gbit/s 15 Gbit/s

20. Peak data rate requirements for IMT-Advanced are _____ for uplink and _____ for downlink

A. 3 Gbit/s 1.5 Gbit/s

B. 600 Mbit/s 270 Mbit/s

C. 30 Gbit/s 15 Gbit/s

21. Carrier aggregation feature is introduced in LTE

A. Release 8

B. Release 9

C. Release 10

22. Uplink spatial multiplexing feature is introduced in LTE

A. Release 8

B. Release 9

C. Release 10

23. Dual-layer beam forming feature is introduced in LTE

A. Release 8

B. Release 9

C. Release 10

24. Multi-antenna support feature is introduced in LTE

A. Release 8

B. Release 9

C. Release 10

---

1). Mobile communication network is also called as _____ network.

Cellular network

Mobile network

2G network

Both a and b

2). _____ technology is used for communicating over large distances wirelessly.

Mobile communication

Land communication

Communication

All the above

3). Which of the following are not used in mobile communication?

Wires

Cables

Wired antenna

All the above

4). _____ technology has grouped different mobile telephony and data type technologies to over 3G.

3.2G

3.5G

3.6G

4G

5). A mobile phone uses _____ type of duplex communication.

Half

Full

Zero

Both a and b

6). A full-duplex communication is _____ way communication.

Single

Two

Multiple

All the above

7). Which of the following are the features of mobile communication?

High load balancing capacity

Highly scalable

Good network management system

All the above

8). Which of the following are the examples of mobile communication systems?

Cellular phones

Cordless phones

Wired phones

Both a and b

9). Which of the following are the facilities of mobile communications?

Mobile 2way radio

Mobile telephone

Public land radio

Amateur radio

All the above

10). Mobile 2-way radio is _____ communication systems.

One to many

Two-way

Full duplex

Simplex

11). Mobile 2-way radio operates in _____ mode.

Half-duplex

Full duplex

Multi duplex

None of the above

12). Citizen band radio operates at _____ frequency.

26 to27.1 MHz

1.8 MHZ

2MHHz

3.5 MHz

13). Citizen band radio communication use _____ type of modulation.

AM

FM

PM

All the above

14). Citizen band radio at 10KHz has _____ number of channels.

20

30

40

50

15). Mobile 2-way radio uses _____ types of service.

Commercial

Non-commercial

Paid

All the above

16). Which of the following is a mobile 2-way radio non-commercial type of service?

Press to talk

Switch to talk

Hold to talk

None of the above

17). A mobile 2-way radio non-commercial types of service uses _____ modulation.

Double sideband suppressed carrier

Single sideband suppressed carrier

Sideband carrier

All the above

18). Public land radio is a _____ system.

One to many

Two way FM radio

Full duplex FM radio

Simplex

19). Which of the following is the application of Public land radio?

Fire

Police

Municipal agencies

All the above

20). Is Public land radio limited to a certain area?

Yes

No

Maybe

21). Mobile telephones offer _____ transmission.

Half

Full

Zero

Infinite

22). Mobile telephones are _____ systems.

One to one

One to many

Many to many

None of the

23). Do mobile telephones permit communication at a time?

Yes

No

Maybe

24). Mobile telephones are safeguarded with _____ for privacy reason.

Unique mobile number

Id card

SIM

IMEI

25). Amateur radio covers _____ frequency band.

Broad

Narrow

Wide

None of the above

26). Amateur radio with a broadband frequency ranges from _____ to _____.

1.8MHz to 30MHz

2MHZ

3MHZ

10Mhz to 20MHz

27). Which of the following are amateur radio frequencies?

FSK

ASK

Continuous wave

All the above

28). FSK is abbreviated as _____.

Frequency shift keying

Frequency side keying

Forward shift keying

All the above

29). ASK is abbreviated as _____.

Amplitude shift keying

Ample shift keying

Altitude shift keying

None of the above

30). When was mobile communication introduced?

1983

1999

1998

1967

31). Who firstly introduced mobile communication?

Motorola

LG

Samsung

None of the above

32). Mobile communication technology is built with _____.

Protocols

Speed

Services

All the above

33). _____ is responsible for the evolution of mobile communication generation.

Modification

Replacements

Fixing

None of the above

34). Which of the following are the technologies used in mobile communications?

1G

2G

3G

All the above

35). Mobile communication technology used in 2021 is _____.

4G

3G

5G

Both a and c

36). Which of the following is 1st generation of wireless mobile communication technology?

1G

2G

3G

5G

37). 1G uses _____ type of signals to communicate data.

Digital

Analog

Discrete

None of the above

38). 1G was introduced in _____ year.

1980

1988

1990

1967

39). 1G supports _____ type of mobile communication.

Voice

Audio

Video

Both a and b

40). 1G was introduced by_____ country.

India

US

Germany

China

41). 1G has the speed of _____.

2.4 kbps

3 kbps

4 kbps

5 kbps

42). Which of the following are the feature of 1G?

Poor quality of voice

Less secure

Power consumption is more

All the above

43). _____ is a second-generation technology.

2G

3G

4G

5G

44). 2G technology uses _____ signals.

Analogue

Digital

Continuous

None of the above

45). 2G technology was released by _____ country.

Germany

Finland

French

China

46). 2G technology was released by Finland in _____ year.

1991

1990

1992

1994

47). 2G mobile communication uses _____ technology.

GSM

Wifi

GPRS

Both a and c

48). 2G mobile communication operates up to _____ speed.

64 kbps

50 kbps

60 kbps

None of the above

49). Which of the following are the features of 2G mobile communication technology?

Better quality compared to 1G

Supports multimedia

Supports text

All the above

50). Is GPRS technology introduced along with 2G mobile communication technology?

Yes

No

Maybe

51). Which of the following are the features supported by GPRS in 2G technology?

Emails

Web browsing

Downloads

All the above

52). 2G technology with GPRS is also called as _____.

2.5 G

3G

4G

5G

53). Third-generation mobile communication technology is represented as _____.

3G

3.4 G

4G

2G

54). Which of the following are the 3G mobile communication features?

High internet speed

High data speed

3D gaming

All the above

55). What is the data speed range of 3G mobile communication?

144kbps to 2Mbps

100kbps to 2Mbps

200kbps to 2Mbps

300 kbps to 345 Kbps

56). Which of the following are web-based applications used by 3G?

Video conference

Emails

Multimedia

All the above

57). Which of the following are the disadvantages of 3G technology?

Costly mobile devices

Requires high infrastructure

High maintenance cost

All the above

58). The next generation of 3G is _____.

3.2G

3.5G

3.6G

4G

59). Mobile is also called as _____.

Cell phone

Handphone

Mobile cellular network

All the above

60). GPS stands for _____.

Global positioning systems

Global partial system

Geo-positioning system

All the above

61). The function of GPS is _____.

Navigates to correct address on earth

Locates address on earth

Points address

All the above

62). Which of the following are the components of GPS?

Satellites

Ground stations

Transmitter and receiver

All the above

63). GPRS stands for _____.

General packet radio receiver

Geo packet radio receiver

Gradient packet radio receiver

None of the above

64). GPRS is used in _____ mobile technology.

2G

3G

4G

Both a and b

65). _____ has led to the growth of mobile communication services.

Increase in battery consumption

Increase in IC technology

Increase in DSP

All the above

66). In cellular network frequency spectrum are divided into _____.

Discrete channels

Non-discrete channel

Class of frequency

None of the above

67). _____ are added to geographic cells of a specific area.

Discrete channels

Non-discrete channel

Class of frequency

None of the above

68). Analog cellular phone is _____ generation technology.

1G

2G

3G

4G

69). Digital cellular phone is _____ generation technology.

1G

2G

3G

4G

70). AMPS stands for _____.

Advanced mobile telephony system

Advanced medium telephony system

Automobile telephony system

None of the above

71). 1G technology was developed based on _____.

Advanced mobile telephony system

Advanced medium telephony system

Automobile telephony system

None of the above

72). AMPS is a _____ service.

Standard cellular telephone service

Cellular telephone service

Standard cellular service

None of the above

73). AMPS in 1G was introduced by _____.

Illinois Bell

Richard

Charles

Dennis

74). Analogue cellular phone has a maximum deviation of the frequency of _____ for 100% modulation.

+/- 12 KHz

+/- 11 KHz

+/- 10 KHz

+/- 9 KHz

75). AMPS uses _____ modulation technique.

Frequency division multiple access

Phase modulation

Amplitude modulation

All the above

76). Does AMPS separate transmissions in frequency domain?

Yes

No

Maybe

77). Subscribers in an analog cellular phone are assigned _____ for mobile call purpose.

Voice channels

Audio channels

Video channels

Both a and b

78). Which of the following is the process performed at receiver end in mobile communication?

Modulation

Decoding

Demodulation

Both b and c

79). Audio channels are also called as _____.

Voice channels

Image channels

Video channels

Both a and b

80). Subscribers in an analog cellular phone are assigned with _____ number of audio channels for mobile call purposes.

Add description here!

2

3

4

5

81). Which of the following are analog cellular phones, audio channels for mobile call purpose?

Forward

Reverse

One way

Both a and b

82). _____ techniques are used by a user to share the spectrum in an efficient way.

Multiple access technique

Frequently access techniques

Rarely access techniques

None of the above

83). Wireless communication uses _____ method.

Multiplexing

Quantizing

Equalizing

None of the above

84). Wireless communication uses _____ number of Multiplexing methods.

2

3

4

5

85). Which of the following are multiplexing methods used in mobile communication?

TDMA

FDMA

CDMA

All the above

86). In which spectrum available spectrum is divided and further these narrow bands are divided equally into time slots?

TDMA

FDMA

CDMA

All the above

87). In North America, the digital cellular standard at IS 136 for each frequency channel is assigned with _____ frequency.

30 KHz

50 KHz

59 Hz

70 Hz

88). _____ multiplexing technique allows users to share traffic channels.

TDMA

FDMA

CDMA

All the above

89). The process where users share an available spectrum in the frequency band is called _____.

Traffic channel

Congestion channel

Noise

Disturbance

90). In which multiplexing techniques, different users are assigned with the different channels.

TDMA

FDMA

CDMA

All the above

91). _____ cellular systems use FDMA type system.

Digital

Analog

Both a and b

Discrete

92). Which of the following is a multicellular transmission type technique?

FDMA

OFDM

CDMA

TDMA

93). OFDMA stands for _____.

Orthogonal frequency division multiplexing

Original frequency division multiplexing

Orthogonal frequency derived multiplexing

Orthogonal frequency-division mutant

94). OFDMA was introduced by _____.

Robert W

Williams

Richard

Charles

95). OFDMA was introduced by Robert W in _____ year.

1966

1967

1965

1999

96). Is OFDM a FDMA technique?

Yes

No

Maybe

97). OFDMA was incorporated into _____ standard.

Wireless network

Wired network

Cable network

All the above

98). In OFDMA, data streams are carried by multiple _____ rate subcarrier type tones.

High

Low

Zero

Infinite

99). Does OFDMA overcome hostile frequency selective type fading?

Yes

No

Maybe

100). OFDMA combines benefits of _____ techniques.

Coherent detection

OFDM modulation

OFDM demodulation

Both a and b

101). OFDM technique reduces electrical BW using _____.

Up-down conversion

Frequency conversion

Increasing frequency bandwidth

None of the above

102). OFDM is suitable for _____ speed circuit design.

High

Low

Medium

Zero

103). OFDM uses _____ mathematical techniques for processing signal.

FFT

IFFT

DFT

Both a and b

Hint

104). FFT stands for _____.

Fast Fourier Transform

Fast Forward Transform

Fast Fourier Turn

None of the above

105). Which of the following are 1G mobile systems?

NMT 450

AMPS

TACS

All the above

106). NMT 450 was released in _____ year.

1981

1982

1985

1986

107). AMPS was released in _____ year.

1981

1982

1985

1986

108). TACS was released in _____ year.

1981

1982

1985

1986

109). NMT 900 was released in _____ year.

1981

1982

1985

1986

110). In NMT 400 or 900, NMT stands for _____.

Nordic Mobile

Northern Mobile

Nordic Mic

None of the above

111). TACS stands for _____.

Total Access Communication System

Total Allocate Communication System

Total Access Conduct System

None of the above

112). Which of the following are the disadvantages of 1G?

Analog

Not robust

Incompatible standards

All the above

113). Which of the following are the advantages of 2G?

Advanced modulation techniques

Reduce in overhead

Includes services such as SMS

All the above

114). Which of the following are 2G technologies?

DAMPS

GSM

JDC

All the above

115). DAMPS 2G technology stands for _____.

Digital Advanced Mobile Phone Systems

Digital Auto Mobile Phone Systems

Digital Advanced Mode Phone Systems

None of the above

116). DAMPS 2G technology was used in _____ country.

North America

European

Japan

UK

117). GSM 2G technology was used by _____.

North America

European

Japan

UK

118). JDC 2G technology stands for _____.

Japanese Digital Cellular

Japanese Data Cellular

Japanese Digital Cite

None of the above

119). JDC 2G technology is used by _____ country.

North America

European

Japan

UK

120). CT-2, 2G technology stands for _____.

Cordless Telephones-2

Cordless Telegraph-2

Cord Telephones-2

None of the above

121). CT-2 of 2G technology is used in _____ country.

North America

European

Japan

UK

122). GSM uses _____ number of frequency range.

3

4

5

6

123). GSM is implemented using 4 frequency ranges and _____ number of multiplexing techniques.

3

4

5

6

124). Which of the following are the multiplexing techniques used in GSM?

FDMA

TDMA

FDD

All the above

125). Primary GSM uses uplink frequency in the range between _____.

890 to 915 MHz

935 to 960 MHz

880 to 915 MHz

925 to 960 MHz

126). Primary GSM uses downlink frequency in the range between _____.

890 to 915 MHz

935 to 960 MHz

880 to 915 MHz

925 to 960 MHz

127). Extended GSM uses uplink frequency in the range between _____.

890 to 915 MHz

935 to 960 MHz

880 to 915 MHz

925 to 960 MHz

128). Extended GSM uses downlink frequency in the range between _____.

890 to 915 MHz

935 to 960 MHz

880 to 915 MHz

925 to 960 MHz

129). GSM 1800 uses uplink frequency in the range between _____.

1710 to 1785 MHz

1805 to 1880 MHz

1850 to 1910 MHZ

1930 to 1990 MHZ

130). GSM 1800 uses downlink frequency in the range between _____.

1710 to 1785 MHz

1805 to 1880 MHz

1850 to 1910 MHZ

1930 to 1990 MHZ

131). GSM 1900 uses uplink frequency in the range between _____.

1710 to 1785 MHz

1805 to 1880 MHz

1850 to 1910 MHZ

1930 to 1990 MHZ

132). GSM 1900 uses downlink frequency in the range between _____.

1710 to 1785 MHz

1805 to 1880 MHz

1850 to 1910 MHZ

1930 to 1990 MHZ

133). The cellular approach in mobile radio is used when frequency resource is _____.

Limited

Zero

Maximum

Minimum

134). A cellular network in which the sum of the area is divided into a smaller portion of area is called _____

Cells

Zone

Perimeter

Fence

135). A cell can cover _____ number of mobile subscribers.

Multiple

Limited

Numerous

Zero

136). Which of the following are the components of a cell?

Base station

RF channels

Transmitter and receiver

Both a and b

137). Is the frequency within a cell simultaneously utilized by other cells at a geographical distance?

Yes

No

Maybe

138). A 7-cell type pattern divides frequency resources into _____ number of parts.

5

6

7

3

139). A cluster of cells where the available frequency spectrum is completely consumed is called _____.

Cluster of cells

Group cells

Cell site

None of the above

140). If 2 cells have a similar number of adjacent clusters and use the same RF channel set, then the channel is called _____.

Co-channel cell

Adjacent cell

Side-channel

Neighboring cell

141). Which of the following are the properties of the cellular site?

Uses available RF efficiently

Mobile users can get an efficient signal within cell site

Zero disturbance

Both a and b

142). A cell is available in which of the following shapes?

Hexagon

Square

Triangle

All the above

143). A hexagon shape covers a specific area using _____ cells.

Few

Many

Single

Two

144). A hexagonal cell has a minimum number of _____.

Base stations

Capital investments

Both a and b

Transmitter

145). Can other shapes such as triangle, circle, or square type cell provide efficient coverage compared to hexagon cell shape?

Yes

No

Maybe

146). Do radio signals depend on environmental conditions?

Yes

No

Maybe

147). Which of the following is the reason behind radio signal dependency on the environment?

Separation between receiver and transmitter

Objects like trees, terrain, and buildings

Climatic changes

All the above

148). The variation of signal attenuation with respect to different parameters is called _____.

Fading

Distortion

Disturbance

Noise

149). Fading is a _____ process.

Random

Continuous

Discontinuous

None of the above

150). Fading is of _____ types.

3

4

5

6

151). Which of the following are the advantages of mobile communication?

Location-independent

Wireless communication

Operates at higher speed

All the above

152). Which of the following are the disadvantages of mobile communication?

Workflow disruption

Requires effective monitoring

Security breach

All the above

153). What is the value of RF signal propagation in free space?

2

3

4

5

154). RF signal propagation constant with value 2 is applied for _____ systems.

Static radio

Dynamic radio

Both a and b

None of the above

155). What is the range value of RF signal propagation constant in a mobile environment?

2 to 3

3 to 4

4 to 6

Both b and c

156). LOS in mobile communication is abbreviated as _____.

Line Of Sight

Light of Sight

Linear Of Sight

Loss of Sight

157). _____ propagation of RF waves occurs due to reflection of RF energy from obstacles.

Multipath

Unidirectional

Bi-directional

All the above

158). Reflection of waves generally occurs from _____.

Walls

Hill

Objects

All the above

159). Do reflected waves undergo phase change?

Yes

No

Maybe

160). At what degrees of phase do reflect waves cancel out each other?

90

120

180

260

161). When a signal cancels out, does its signal strength reduce?

Yes

No

Maybe

162). Multipath propagation property in mobile communication leads to _____.

Inter symbol interface

Pulse widening

Both a and b

Signal discarding

163). _____ type of fading in mobile communication is caused due to multipath reception.

Rayleigh fading

Shadow fading

Block fading

Selective fading

164). _____ cause changes in the frequency of the received RF type signal.

Mobility of subscribers

Mobile phone usage

Turning of signal

All the above

165). Which of the following are the counter techniques for solving frequency distortion of an RF signal?

Channel coding

Interleaving

Equalization

All the above

166). Which of the following are the advantages of sectoring?

Decreases co-channel interference

Increases systems capacity

Increase noise

Both a and b

167). Which of the following are the disadvantages of sectoring?

Requires more antennas

Reduces efficiency of trunking

Increases use of Hands offs

All the above

168). Do mobile units when traveling through a path cross different cells?

Yes

No

Maybe

169). Mobile unit traveling through different cells enters different frequency allows the control taken by _____.

Base stations

Antenna

Servers

All the above

170). Mobile unit traveling through different cells enters different frequencies allows a base station to take control is defined as _____.

Hands off

Trucking

Interpolation

All the above

171). Which of the following are the conditions for hand-off?

Signal received should be below threshold value

Interface ratio of a carrier should be below that 18dB

High power consumption

Both a and b

172). Which of the following is the function of an imperfect filter?

Leaks frequencies into pass band

Adjacent channel interference

High power consumption

Both a and b

173). Which of the following are the countermeasures for an imperfect filter?

Isolating RF channel

Reducing distance

Improving SNR ratio

All the above

174). It is not possible to separate RF frequencies when the value of the reuse factor is _____.

Small

Large

Infinite

Zero

175). _____ is used for accommodating multiple users within a limited radio spectrum.

Trunking

Fading

Multiplexing

Both a and b

176). GOS in mobile communication stands for _____.

Grade of Service

Grade of Site

General out Sourcing

None of the above

177). The condition where all the channels are engaged is called _____.

Grade of Service

Trunking

Fading

None of the above

178). Cellular-based designers estimate _____ to allocate RF number of channels to meet GOS.

Cost

Capacity

SNR

All the above

179). _____ is required to calculate GOS value.

ERLANG B table

LOG table

Anti Log Table

All the above

180). The advantage of cell splitting is _____.

Improve capacity

Reduce transmission power

Add noise

Both a and b

181). GSM network in mobile communication has _____ number of systems.

2

3

4

5

182). Which of the following are the GSM network systems?

Switching system

Mobile station

Base station system

Operation and maintenance center (OMC)

All the above

183). Switching system is also named _____.

Network and Switching Systems

Networking systems

Service systems

All the above

184). NSS in mobile networking systems is abbreviated as _____.

Network and Switching Systems

Networking Systems Switch

Network Software System

All the above

185). Which of the following is the function of NSS?

Processes calls

Processes subscriber related functions

Deactivates network

Both a and b

186). Which of the following are the functional units of NSS?

Mobile switching center

Visitor location register

Home location register

All the above

187). Mobile switching center interfaces with _____ to operate.

PSTN

MSC

Other mobile switching centers

All the above

188). Which of the following are the functions of MSC?

Handles location registration

Handles MSC-BSS signal protocol

Manages radio link during calls

All the above

189). MSC is abbreviated as _____.

Mobile Switching Centers

Mobile Setup Centers

Movement Switching Centers

All the above

190). Which of the following are the components of the home location register?

Contains IMSI

Services subscription information

Information on service restriction

All the above

191). IMSI is abbreviated as _____.

International Mobile Sub Identity

Internet Mobile Sub Identity

International Mobile Side Identity

None of the above

192). HLR is abbreviated as _____.

Home Location Register

Hide Location Register

Home Location Relay

None of the above

193). Visitor location register is integrated with _____.

MSC

HLR

ISDN

All the above

194). Which of the following components does VLR comprise of?

Mobile sub identity

Temporary identity of mobile sub

ISDN mobile directory number

All the above

195). IMEI stands for _____.

International Mobile Equipment Identity

Inter Mobile Equipment Identity

International Movable Equipment Identity

None of the above

196). Authentication center is related to _____.

HLR

VLR

MSC

None of the above

197). Authentication center provides _____ for each mobile subscriber.

Authentication keys (Ki)

Information

Messages

All the above

198). The authentication key provided by the authentication center generates _____.

RAND

SRES

Cipher key

All the above

199). Which of the following is the function of SRES in the authentication key?

Authenticates mobile

Authenticates IMSI

Secures messages

All the above

200). Which of the following are the functions of the cipher key?

Encrypts communication

Transmits communication

Authenticates IMSI

All the above

201). Which of the following are the functions of the operation and maintenance center?

Installs software

Manages traffic

Traces subscriber

All the above

202). Which of the following are the components of a base station?

Base trans receiver station

Base station controller

Antenna

Both a and b

203). Which of the following are the components of mobile stations?

SIM

Mobile equipment's

Base station

Both a and b

204). SIM is abbreviated as _____.

Subscriber Identity Module

Subscriber Idea Module

Subscriber Identity Mode

None of the above

205). Which of the following are the functions of a base station?

Transmits and receives radio waves

Controls data flow

Manages mobility

All the above

206). The European GSM system categorizes mobile telephones into _____ number of units.

3

4

5

6

207). Which of the following are other network elements of mobile communication?

SMS service centers

Voice mailbox

SMS flow

All the above

208). Rayleigh fading is also called _____.

Macroscopic variation

Microscopic variation

Signal variation

None of the above

209). Which of the following are the processes used while communicating information over radio link?

Coding

Modulation

Interference

Both a and b

210). Which of the following is the process performed transmitter end in mobile communication?

Modulation

Coding

Demodulation

Both a and b

1- Which formula is used to find cluster size in Cellular system design?

(a) $N=I^2+J^2$

(b) $N=I^2+J^2+(I \text{ X } J)$

(c) $N=I^2+J^2 (I + J)$

(d) N=I2 *J2+(I + J)

2- Which technique is used to increase cell capacity using directional antenna?

(a) Cell Splitting
(b) Coverage zone approaches
(c) Cell Sectoring
(d) Cell Sectoring and Cell Splitting both

3- Global Roaming was introduced by which mobile generation?

(a) 1G

(b) 2G

(c) 3G

(d) 4G

4. What functions is/are performed by an antenna?

(a) Transmission

(b) Reception

(c) Transmission and Propagation

(d) Transmission and Reception

6. Which antenna radiates power in all directions equally?

(a) Parabolic Reflective Antenna

(b) Directional antenna

(c) Isotropic antenna

(d) Dipole antenna

7. Which antenna is also known as the Marconi antenna?

(a) Omni directional antenna

(b) Directional antenna

(c) Isotropic antenna

(d) Dipole antenna

8.Which Propagation mode follows the curvature of the earth surface?

(a)Ground-wave propagation

(b)Sky-wave propagation

(c)Line-of-sight propagation

(d)Electromagnetic propagation

11. In Amplitude modulation which is the constant parameter

(a) Frequency and phase

(b) Amplitude and phase

(c) Amplitude and frequency

(d) Amplitude and propagation

12. Which modulation technique is used in FM Radio broadcasting?

(a) Amplitude Modulation

(b) Frequency Modulation

(c) Phase Modulation

(d) Wavelength Modulation

13. Which modulation technique has a higher SNR value comparatively?

(a) Quantization

(b) Delta Modulation

(c) Pulse Code Modulation

(d) Phase Modulation

14.In which spread spectrum technique the signal is broadcast over seemingly random series of radio frequencies

(a) FHSS

(b) DSSS

(c) CSMA

(d) CDMA

15 In which spread spectrum the technique combines digital information stream with the spreading code bit stream using exclusive-OR

(a) FHSS

(b) DSSS

(c) CSMA

(d) CDMA

17. _____Error Detection Techniques is based in binary division

(a) Parity Check

(b) Cyclic Redundancy Check (CRC)

(c) Checksum

(d) CRC and Checksum both

20. _____ is also known as Positive Acknowledgement with Retransmission (PAR)

(a) ARQ

(b) Cyclic Code

(c) Hamming Code

(d) Convolution Code

22.Which modulation scheme is used by FHSS?

(a) FSK

(b) BPSK

(c) MPSK

(d) MFSK

23. Which modulation scheme is used by DSSS?

(a) QPSK

(b) BPSK

(c) MFSK

(d) QPSK and BPSK both

24. ARQ stands for_____

(a) Acknowledge Repeat Request

(b) Automatic Repeat Request

(c) Automatic Retransmit Request

(d) Authorized Repeat Request

25. In cellular network, adjacent cells operate on different frequencies to avoid _____

(a) Crosstalk

(b) Reflection

(c) Refraction

(d) Thermal noise

26. _____ is the process of subdividing a congested cell into smaller cells.

(a) Cell Splitting

(b) Coverage zone approaches

(c) Cell Sectoring

(d) Power level

27. _____ increases the capacity of a cellular system since it increases the number of times that channels are reused.

(a) Cell Splitting

(b) Coverage zone approaches

(c) Cell Sectoring

(d) Power level

28. To split the cell into smaller cells, the _____must be reduced to keep the signal within the cell.

(a) Frequency

(b) Phase

(c) Power level

(d) Amplitude

29. _____ is less expensive, as it does not require the acquisition of new base station sites

(a) Cell Splitting

(b) Coverage zone approaches

(c) Cell Sectoring

(d) both Cell Splitting and Cell Sectoring

31. Radius of the cell is kept constant in _____

(a) Cell Splitting

(b) Coverage zone approaches

(c) Cell Sectoring

(d) both Cell Splitting and Cell Sectoring

32. _____affects all frequencies in same proportion

(a) Fast fading

(b) Slow fading

(c) Flat fading

(d) Selective fading

33. In _____ different frequency components affected differently

(a) Fast fading

(b) Slow fading

(c) Flat fading

(d) Selective fading

34. _____ technology divides a signal into various timeslots and increases the data-carrying capacity.

(a) TDMA

(b) CDMA

(c) FDMA

(d) Both TDMA and FDMA

35. The 2G GSM technology uses a carrier separation of

a. 1.25 MHz
b. 200 KHz
c. 30 KHz

d. 300 KHz

---

1. The frequency separation between each forward and reverse channel changes throughout the system.

a) True

b) False

2. ____ is based on FDMA/FDD.

a) GSM

b) W-CDMA

c) Cordless telephone

d) AMPS

3. Which one is not a standard of second generation networks?

a) GSM

b) IS-95

c) AMPS

4. Which is one of the disadvantages of 2G standards?

a) Short Messaging Service (SMS)

b) Use digital signals for voice transmission

c) Limited capacity

d) Unable to handle complex data such as videos

5. What is the term used for a set of global standards of 3G systems?

a) IMT 2000

b) GSM

c) CDMA

d) EDGE

6. Who has the responsibility of billing and system maintenance function in cellular system?

a) Base Station

b) PSTN

c) MSC

d) Mobile system

7.What is the shape of the cell present in the cellular system?

a) Circular

b) Square

c) Hexagonal

d) Triangular

8. Which of the following is not a standard of 3G?

a) UMTS

b) CDMA2000

c) WCDMA

d) LTE

9. The process of transferring a mobile station from one base station to another is _____

a) MSC

b) Roamer

c) Handover

d) Forward channel

10. What is the full form of UMTS?

a) Universal Mobile Telephone System

b) Ubiquitous Mobile Telephone System

c) Ubiquitous Mobile Telemetry System

d) Universal Machine Telemedicine System

11. UMTS use which multiple access technique?

a) CDMA

b) TDMA

c) FDMA

d) SDMA

12. How much packet data rate per user is supported by W-CDMA if the user is stationary?

a) 2.048 Kbps

b) 100 Mbps

c) 2.048 Mbps

d) 1 Gbps

13.What changes do GPRS need to acquire while upgrading itself from GSM?

a) A whole new base station

b) New transceiver at base station

c) New channel cards

d) New packet overlay including routers and gateways

14. Frequency hopping involves a periodic change of transmission _____

a) Signal

b) Frequency

c) Phase

d) Amplitude

15. Why are neighboring stations assigned different groups of channels in the cellular system?

a) To minimize interference

b) To minimize area

c) To maximize throughput

d) To maximize capacity of each cell

16. What is a cell in the cellular system?

a) A group of cells

b) A group of subscribers

c) A small geographical area

d) A large group of mobile systems

17. What is frequency reuse?

a) Process of selecting and allocating channels

b) Process of selection of mobile users

c) Process of selecting frequency of mobile equipment

d) Process of selection of number of cells

18. For a cellular system, if there are N cells and each cell is allocated k channel. What is the total

number of available radio channels, S?

a) S=k*N

b) S=k/N

c) S=N/k

19.What is a cluster in a cellular system?

a) Group of frequencies

b) Group of cells

c) Group of subscribers

d) Group of mobile systems

20. Capacity of a cellular system is directly proportional to ____

a) Number of cells

b) Number of times a cluster is replicated

c) Number of Base stations

d) Number of users

21. Which of the following memory devices stores information such as the subscriber's identification number in GSM?

a) Register

b) Flip flop

c) SIM

d) SMS

22. 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 4 cell reuse?

a) 150 channels

b) 600 channels

c) 50 channels

d) 85 channels

23. Interference in cellular systems is caused by

A Two base stations operating in same frequency band

B Two calls in progress in nearby mobile stations

C Leakage of energy signals by non-cellular systems into cellular frequency band

D All of the above

24. Co-channel reuse ratio depends upon

A Radius of the cell

B Distance between the centers of the co channel cells

C Frequency allocation of nearest cells

D Both a and b

25. 3G W-CDMA is also known as

A UMTS

B DECT

C DCS-1800

D ETACS

26. Radio capacity may be increased in cellular concept by

A Increase in radio spectrum

B Increasing the number of base stations & reusing the channels

C Both a & b

D None of the above

27. The interference between the neighboring base stations is avoided by

A Assigning different group of channels

B Using transmitters with different power level

C Using different antennas

D All of these

28.The advantage of using frequency reuse is

A Increased capacity

B Limited spectrum is required

C Same spectrum may be allocated to other network

D All of the above

29. US cellular telephone system, AMPS stands for ____

a) Advanced Mobile Phone System

b) Analog Modulation Packet System

c) Advanced Mobile Precision System

d) Analog Mobile Precision System

30. The AMPS system uses a _____ cell reuse pattern.

a) One

b) Five

c) Three

d) Seven

31. ____ carries signaling and synchronizing commands.

a) Traffic channels

b) Control channels

c) Signaling channels

d) Forward channels

32. OFDM is a technique for 3G mobile communication.

a) True

b) False

33. Which of the following is the world’s first cellular system to specify digital modulation and network level architecture?

a) GSM

b) AMPS

c) CDMA

d) IS-54

34. Which of the following does not come under subsystem of GSM architecture?

a) BSS

b) NSS

c) OSS

d) Channel

35. Which of the following subsystem provides radio transmission between mobile station and MSC?

a) BSS

b) NSS

c) OSS

d) BSC

36. _____ manages the switching function in GSM.

a) BSS

b) NSS

c) OSS

d) MSS

37. _____ control and monitor the overall GSM.

a) BSS

b) NSS

c) OSS

d) MSC