1- The best wireless technique to connect PAN devices together is Bluetooth. Identify another one:

A- Free space optics

B-Fiber optics

C- Wi-Fi

D- UWB

2- The best wireless technique for Wireless Internet connection is:

A- UWB

B- Wi-Fi

C-Bluetooth

D- Broadband

3- UWB is better in terms of:

A- Less noise

B- High security

C-Reducing cost

D- Power consumption

4- 1xRT is a system used for data transfer on:

A-GSM

B- CDMA

C-TDD

D- UMTS

5- Wi-Fi networks that have 54Mbps speed and can reach about 100 feet distance and 5GHz frequency is called:

A- IEEE 802.11

B- IEEE 802.11b

C- IEEE 802.11g

D- IEEE 802.11a

6- How many access points that are needed to connect mobile devices within the area 960 m (length) x 720m (width), if all wireless cards and access points are from the type Wi-Fi (g)?

1. 90

1. 150

C.192

D. 240

7- The best technique to connect a company has two separated buildings belong to the same Company and the area between them (3 Km) belongs also to the same company, is to use ..... in terms of speed only which is 200Mbps.

A. UWB

B- Broadband

C- Terrestrial Microwave

D- VSAT

8- The best technique to connect a company has two branches in two separated countries, is to use in terms of 1Mbps speed AND as less cost as possible and medium security.

A- Microwave

B- VSAT

C- Cellular system

D-UWB

9- A fixed satellite located on equator used for TV channels

A-LEO

B- MEO

C- GEO

D-HEO

10- Bluetooth bandwidth is up to:

A- 7 MHz

B- 80 GHz

C- 7 GHz

D- 80 MHz

11- The 2.5 generation cellular operation in the European Union (EU)countries is called

A- GPRS

B- EDGE

C- UMTS

D- HDSPA

12- MANET has the advantage of

A. Autonomous

B. Picante

C. Base station

D. Hotspot

13. UWB speed is up to

A. 400 Mbps

B. 200 Mbps

C. 100 Mbps

D. 54 Mbps

14. FSO Distance can reach

A.100 m

B. 200m

C. 500mn

D.1000 m

15. Zigbeee speed is up to

A. 50 kbps

B. 115 kbps

C. 300 kbps

D. 72 Mbps

16. The best wireless technology in terms of power consumption so that it is used for sensors is:

A. Zigbee

B. Bluetooth

C. UWB

D. Wi-Fi

17. Pulse Code Modulation (PCM) is a technique of transmitting:

A- digital data with analog signals

B- Analog data with digital signals

c- digital data with digital signals

D- analog data with analog signals

18. In frequency shift keying (FSK):

A- Amplitude changes BUT frequency and phase are fixed

B- Frequency changes BUT amplitude and phase are fixed

C- Phase changes BUT amplitude and frequency are fixed

D- All of them change

19. has a voltage change at the beginning of a 1 and no voltage change at the beginning of a 0.

A- NRZ-L

B- NRZI

C- Differential Manchester

D- Bipolar-AMI

20. A signal starts at 150 watts and ends at 200 watts? What is dB loss?

A. 1 0.75

B. +0.25

C. -1.25

D. +1.25

21. Modem is an example of ..... applications.

A- digital data with analog signals

B- Analog data with digital signals

C- digital data with digital signals

D- analog data with analog signals

22. An example of digital-to-digital conversion is:

A. TV tuner

B. Digital encoder

C. Modem

D. Codec

23. Quadrature Amplitude Modulation (QAM) is a technique of transmitting:

A- digital data with analog signals

B- Analog data with digital signals

C- digital data with digital signals

D- analog-data with analog signals

24. In Amplitude shift keying (ASK):

A- Amplitude changes BUT frequency and phase arc fixed

B- Frequency changes BUT amplitude and phase are fixed

C- Phase changes BUT amplitude and frequency are fixed

D- All of them change

25. four signals are used to transmit data, which of the following is True regarding to baud rate and bit rate?

A- Baud rate = bit rate

B- Baud rate = 2 x bit rate

C- Bit rate =2 x baud rate

D- Bit rate =4 x baud rate

26.In_____ encoding scheme, when the device transmits binary 1, either a positive voltage negative voltage is transmitted.

A- NRZ-L

B- NRZI

C- Differential Manchester

D- Bipolar-AMI

27. As an example of Quadrature Amplitude Modulation (QAM),

4. 16 different phases are combined with 2 different amplitudes with a total of 12 combinations

B. 12 different phases are combined with 4 different amplitudes with a total of 16 combinations.

C. 12 different phases are combined with 2 different amplitudes with a total of 16 combinations.

D. 16 different phases are combined with two different amplitudes with a total of 16 combinations

28. A type of mobile ad hoc networks used for moving cars, vans, and trucks is called:

A. MANET

B. VANET

C. FANET

D. WSN

29. A type of mobile ad hoc networks used under water is called :

A. WSN

B. VANET

C. WSN

D. UWSN

30. The biggest challenge for MANET operation that affects all MANET issues is:

A. Routing

B. Security

C. Mobility

D. Qos

31. Ad hoc routing protocols that are based on on-demand routing discovery are called:

A. Proactive routing protocols

B. Reactive routing protocols

C. Hybrid routing protocols

D. None of the above

32. An example of hybrid ad hoc routing protocols is:

A. DSDV

B. DSR

C. LODV

D. ZRP

33. An example of ad hoc routing protocols that are based on table driven is:

A. OLSR

B. AODV

C. DSDV

D. DSR

34. An ad hoc routing protocol that is based on source routing is:

A. DSR

B. AODV

C. DSDV

D. TORA

35. An ad hoc routing protocols that is based on distance vector and on-demand route discovery using Route Request and Rout Reply operations is called:

A. OLSR

B. AODV

C. DSDV

D. TORA

36. A wireless technique transmits data only with line-of-sight is:

A- Wi-Fi

B- UWB

C- Terrestrial Microwave

D- ZigBee

37. LTE is a technique used to transmit data in:

A-2.5G networks

B- 3G networks

C- 4G networks

D- 5G networks

38. WiMAX is outdoor wireless network used in:

A- WPAN

B- WLAN

C-WMAN

D-WWAN

39. In the frequency spectrum, microwave satellite often operates at:

A- frequencies less than 800 MHz

B- frequencies more than 800 MHz and less than 3 GHz

C- frequencies more than 3 GHz and less than 300 GHz

D- frequencies more than 3 GHz and less than 300 THz

40. In the frequency spectrum, an frequency of 150 THz is located between

A-10^13 and 10^14

B- 10^14 and 10^15

C- 10^15 and 10^16

D-10^16 and 10^17

1. The frequency band of FM radio and TV is _____

A- From 36 KHz to 30 MHz

B- From 30 MHz to 300 MHz

C. From 300 MHz to 30 GHz

D- From 30 GH2 to 300 GHz

2. A technology for orthogonal frequency division multiple access (OFDMA) technology is developed for _____

A- AMPS

B- GSM

G UMTS

D- LTE

3. The maximum transmission rate the channel can reach. This is the definition of Channel _____

A- Bandwidth

B- Throughput

C- Latency

D- Capacity

4. in the frequency spectrum, the microwave contains _____

A- frequencies less than I GHZ

B- frequencies from 1GHz to 40 GHz.

C- frequencies more than 300 THz

D- frequencies from 300 GHz to 300 THz

5. In the frequency spectrum, a frequency of 15 GHz is located between _____

A- 10-8 and 10^9

B- 10^9 and 10^10

C- 10^10 and 10^11

D- 10^11 and 10^12

6. The frequency range of Infrared is _____

A- 3x10^8 to 2x10^11

B- 3x10^9 to 2x10^12

C- 3x10^10 to 2x10^13

D- 3x10^11 to 2x10^14

7. Which one of the following is free license frequency?

A- 30 MHz

B- 800 MHz

C- 2.4GHz

D- 200 GHz

8. Spread Spectrum technique is used to _____

A- enhance bandwidth

B- reduce noise

C- reduce energy consumption

D- All of the above

9- The problem of generating multipath in a communication system is called _____

A- Attenuation

B- Crosstalk

C- Fading

D- Interference

10. The frequency range of the radio wave is _____

A- From 30 KHz to 300 KHz

B- From 300 KHz to 3 MHz

C- From 30 MHz to 1 GHz

D- From 30 GHz to 300 GHz

11. The difference between maximum and minimum frequencies in the channel. This is the definition of Channel _____

A- Bandwidth

B- Throughput

C- Latency

D- Capacity

12. In the frequency spectrum, the satellite microwave works mainly at _____

A- HF

B- LHF

C- VHF

D- SHF

13. The frequency range of UHF is around _____

A- 10^8

B- 10^9

C- 10^10

D- 10^11

14. The Frequency Hopping Spread Spectrum (FHSS) technique is mainly used to_____

A- enhance security

B- reduce bandwidth

C- increase energy consumption

D- All of the above

15. The problem of generating multipath in a communication system can be solved by

A- Attenuation

B- Equalization

C- Fading

D- Interference

1. The transfer of digital or analog data using digital or analog signals, this is the definition of .....

A. Computer network

B. Data communication

C. Data network

D. Voice network

2. The microwave frequency range is located between _____.

A. 10^8 - 10^9

B. 10^9 - 10^10

C. 10^10 - 10^11

D. 10^9 - 10^11

3. Radio frequency range is _____.

A. 2MHz - 500MHz

B. 30MHz - 1GHz

C. 3GHz - 40GHz

D. 300GHz - 1THz

4. _____ can cause multiple copies of the signal to arrive.

A. Reflection

B. Refraction

C. Defraction

D. Scattering

5. _____ means use a signal format to send as many bits as possible.

A. Encoding

B. Multiplexing

C. Modulation

D. Attenuation

6. _____ is defined as counteract the multipath effects of the channel.

A. Modulation

B. Equalization

C. Multiplexing

D. Spread spectrum

7. _____ is analog or digital signal pattern that repeats over time.

A. Analog signal

B. Digital signal

C. Periodic signal

D. Noisy signal

8. _____ is a narrow band of frequencies that most of the signal's energy is contained in.

A. Absolute bandwidth

B. Effective bandwidth

C. Chanel capacity

D. Chanel throughput

9. _____ is the maximum rate at which data can be transmitted over a given communication path, or channel, under given conditions.

A. Absolute bandwidth

B. Effective bandwidth

C. Chanel capacity

D. Chanel throughput

10. Signal reflected from ionized layer of atmosphere back down to earth, this is the definition of _____.

A. Ground wave propagation

B. Sky wave propagation

C. Line-of-sight propagation

D. FM propagation

1. A network with a distance of few meters to 20 m is called_____.

A. WPAN

B. WLAN

C. WMAN

D. WWAN

2. The radio frequency range is located between _____.

A. 10^6 - 10^7

B. 10^7 - 10^8

C. 10^7 - 10^9

D. 10^7 - 10^10

3. Microwave frequency range is _____.

A. 3MHz - 500MHz

B. 30MHz - 1GHz

C. 1GHz - 40GHz

D. 300GHz - 1THz

4. _____ is the physical path between transmitter and receiver

A. Transmission rate

B. Transmission area

C. Transmission medium

D. Transmission fading

5. _____ carrying multiple signals on a single medium.

A. Encoding

B. Multiplexing

C. Modulation

D. Attenuation

6. _____ is defined as the strength of signal falls off with distance over transmission medium.

A. Fading

B. Equalization

C. Attenuation

D. Doppler spread

7. _____is used to expand the signal bandwidth.

A. Modulation

B. Equalization

C. Multiplexing

D. Spread spectrum

8. _____ is the width of the spectrum of a signal.

A. Absolute bandwidth

B. Effective bandwidth

C. Chanel capacity

D. Chanel throughput

9. One or more delayed copies of a pulse may arrive at the same time as the primary pulse for a subsequent bit. This is the definition of ___.

A. Multipath fading

A. Doppler spread

B. intersymbol interference (ISI)

C. Atmospheric absorption

10. _____ follows contour of the earth. It can propagate considerable distances with frequencies up to 2 MHz.

A. Ground wave propagation

B. Sky wave propagation

C. Line-of-sight propagation

D. FM propagation

I. A reference model that describes 4 layers of hardware and software.

A- 1S0-OSI model

B. TCPIP model

C. SNA model

D. Clint/server model

2. In TCPIP model the following two layers are not merged.

A. Application layer and presentation layer

B. Network layer and transport layer

C. Data link Layer and physical layer

D. Transport layer and session layer

3. Responsible for taking congestion control.

A- Data link layer

B. Network layer

C. Transport layer

D. Presentation layer

4. One of the following is not a Data Link Layer function.

A. Error control

B. IP Addressing

C. Forming frames

D.MAC addressing

5. one technique of digital-ot-digital conversion; which type is it?

A.NRZ-L

B. NRZI

C. Manchester

D. Differential Manchester

6. One of the more recent standards, capable of transmitting data at 11 Mbps using the 2.4 GHz frequency range, for 100 m maximum coverage radius. ....

A Wi-Fi (EEE 802.11n)

B. Wi-Fi (IEEE 802.11b)

C, Wi-Fi (IEEE &02.11a)

D. Wi-Fi (IEEE 802.11g)

7. How many access points that are needed to connect mobile devices within the area 180 m (length) x 90 m(width) if all wireless cards and access points are from the type Wi-Fi (n)? .....

4.3

B.6

C.9

D.12

8. A Wireless technique transmits data only with line-of-sight is .....

A- Wi-Fi

B. UWB

C. Infrared

Bluetooth

9. HDPSA is a technique used in 3G networks it is an extension of the GSMEDGE technology. Data rates of HSDPA are equivalent to data rates of _____ technique in CDMA system:

A- lxRTT

B. IxEV.DO

C. lxDV

D.EV-DO Rev.A

10. A wireless LAN may be configured without an access point. These configuration is called:

a. Wi-Fi

B. Ad hoc

C. Hot spot

D. Piconet

1. Millimeter wave (mmWave) frequencies are in the bands:

A- 2MHz to 500MHz

B- 30MHz to 1GHz

C- 3GHz to 40GHz

D- 30 GHz to 300 GHz

2. _____ is the range of frequencies that a signal contains

A- Absolute bandwidth

B- Effective bandwidth

C- Chanel capacity

D-Spectrum

3. The relationship between Data Rate and Bandwidth can be described as follows:

A- The greater the bandwidth, the higher the information-carrying capacity

B- The greater the bandwidth, the lower the information-carrying capacity

c- The smaller the band width, the higher the information-carrying capacity

D- The smaller the bandwidth, the lower the information-carrying capacity

4. Data rate is the rate at which data can be communicated, it is measured in

A- Hertz

B- Bits per second

C- Bytes per second

D- Signals per second

5. _____ is usually referred to as wireless transmission.

A- Channel media

B- Guided media

C- Unguided media

D- Wired Media

6. Transmission and reception are achieved by means of an antenna. Configurations for wireless transmission that broadcast signal to all directions is called

A-Directional

B- In directional

C- Multidirectional

D-Omnidirectional

7. Infrared frequency range is roughly_____

A- 3x10^8 to 2x10^11

B- 3x10^9 to 2x10^12

C- 3x10^10 to 2x10^13

D- 3x10^11 to 2x10^14

8. Broadcast radio band is 30 MHZ to 1GHz which covers

A- AM radio, UHF and VHF television

B- FM radio, UHF and VHF television

C- UHF and VHF radio, and AM television

D- UHF and VHF radio, and FM television

9. takes advantage of the fact that the useful bandwidth of the medium exceeds the required bandwidth of a given signal.

A-FDMA

B- TDMA

C- CDMA

D- OFDMA

10. Which of the following is TRUE regarding to use of CDMA and OFDMA?

A- CDMA is used in 3G and 4G

B- OFDMA is used in 3G and 4G

C- CDMA is used in 3G and OFDMA is used in 4G

D- OFDMA is used in 3G and CDMA is used in 4G