BRAINWARE UNIVERSITY

Term End Examination 2021 - 22
Programme – Bachelor of Science (Honours) in Advanced Networking & Cyber Security
Course Name – Communication System
Course Code - GEEC201
(Semester II)

Time : 1 Hr.15 Min.

Full Marks : 60

[The figure in the margin indicates full marks.]

Group-A
(Multiple Choice Type Question)

1 x 60=60

Choose the correct alternative from the following :

(1) Communication is the process of
  a) keeping in touch
  b) broadcasting
  c) exchanging information
  d) entertainment by electronics

(2) Modulation is done in
  a) receiver
  b) transmitter
  c) channel
  d) both receiver and transmitter

(3) Radio signals are made up of
  a) voltage and current
  b) electrons and protons
  c) electric and magnetic field
  d) none of these

(4) A special AM broadcasting transmitter radiates 10 kW when the depth of modulation is 60%. The carrier power required is
  a) 9 kW
  b) 7.8 kW
  c) 8.47 kW
  d) 9.5 kW

(5) What do you understand by the term SSB?
  a) suppressed Side Band
  b) suppressed Single Band
  c) single Side Band
  d) selected Single Band

(6) Thermal noise is also called as
  a) johnson noise
  b) avalanche noise
  c) shot noise
  d) flicker noise

(7) The spectrum of a signal extends from 200 Hz to 3200 Hz. This signal is
  a) a low pass signal
  b) a high pass signal

c) a band pass signal

d) a band stop signal

(8) The sampling process converts

a) continuous time signal into continuous time signal

b) continuous time signal into a discrete time signal

c) discrete time signal into a continuous time signal

d) discrete time signal into discrete time signal

(9) The process of transmitting two or more information signals simultaneously over the same channel is called

a) multiplexing

b) telemetry

c) detection

d) modulation

(10) Which of the following is not a major communication medium?

a) free space

b) water

c) wires

d) fiber optic cable

(11) A pre-emphasis circuit provides extra noise immunity by

a) boosting the base frequencies

b) amplifying the higher audio frequencies

c) pre-amplifying the whole audio band

d) converting the phase modulation to FM

(12) Amplitude modulation is used for broadcasting because

a) it is more noise immune than other modulation system

b) it consumes less transmitting power

c) its use avoids receiver complexity

d) no other modulation system can provide the necessary bandwidth for high fidelity

(13) In frequency modulation

a) the frequency of the carrier remains constant

b) the amplitude of carrier remains constant

c) the amplitude of the carrier wave is varied

d) the frequency of the signal is made equal to the carrier frequency

(14) Armstrong F. M. transmitter performs frequency multiplication in stages

a) to increase the overall S/N ratio

b) to reduce bandwidth

c) to find the desired value of carrier frequency as well as frequency deviation

d) for convenience

(15) For which of the following systems, the signal to noise ratio is the highest?

a) PAM

b) PWM

c) PPM

d) PAM and PWM

(16) What are the three steps in generating PCM in the correct sequence?

a) sampling, quantizing & encoding

b) encoding, sampling & quantizing

c) sampling, encoding & quantizing

d) quantizing, sampling & encoding

(17) One disadvantage of adaptive delta modulation over linear delta modulation is that it

a) requires more bandwidth

b) is more vulnerable to channel errors

c) requires a larger number of comparators in the encoder

d) is not suitable for signals with periodic component

(18) If large amount of information is to be transmitted in a small amount of time, we require

a) low-frequencies signals

b) narrowband signals

c) wide band signals

d) high-frequencies signals

(19) The most commonly used transmission channels are

a) cables

b) radio links

c) pneumatic

d) both cables & radio links

(20) Maximum efficiency in AM is

a) 25%

b) 50%

c) 33%

d) 83%

(21) If f_m is the modulating frequency of an AM wave, the sideband frequencies of this wave are

a) greater than f_m

b) equal to f_m

c) less than f_m

d) none of these

(22) In a communications system, noise is most likely to affect the signal

a) at the transmitter

b) in the channel

c) in the information source

d) at the destination

(23) Thermal noise is independent of

a) bandwidth

b) temperature

c) center frequency

d) Boltzmann constant

(24) A carrier is simultaneously modulated by two sine waves with modulation indices of 0.3 and 0.4; the total modulation index is

a) 0.707

b) 0.5

c) 1

d) none of these

(25) In generation of modulated signal, a varactor diode can be used for

a) FM generation only

b) AM generation only

c) PM generation only

d) both AM and PM generation

(26) The most common modulation system used for telegraphy is

a) frequency-shift keying

b) two-tone modulation

c) pulse-code modulation

d) single-tone modulation

(27) Companding is used

a) to overcome quantizing noise in PCM

b) in PCM transmitters, to allow amplitude limited in the receivers

c) to protect small signals in PCM from quantizing distortion

d) in PCM receivers, to overcome impulse noise

(28) If fm is the modulating frequency of an AM wave, the sideband frequencies of this wave are

a) greater than fm

b) equal to fm

c) less than fm

d) none of these

(29) What is the ratio of modulating power to total power at 100 percent modulation?

a) 1:3

b) 1:2

c) 2:3

d) none of these

(30) When the modulating frequency is doubled, the modulation index is halved, and the modulating voltage remains constant. The modulation system is

a) amplitude modulation

b) phase modulation

c) frequency modulation

d) any of three

(31) Quantizing noise occurs in

a) time-division multiplex

b) frequency division multiplex

c) pulse-code modulation

d) pulse-width modulation

(32) Number of sidebands in FM signal

a) 2

b) 1

c) zero

d) none of these

(33) In the VSB system

a) picture and sound carrier are transmitted

b) only sound carrier is transmitted

c) only picture carrier is transmitted

d) none of these

(34) One of the following system is analog

a) PCM

b) DM

c) DPCM

d) PAM

(35) The DSB-SC signal consists of

a) two sidebands and carrier

b) one sideband and carrier

c) two sidebands

d) one sideband

(36) What do you understand by the term analog communication?

a) A method in which one of the properties of a carrier signal varies in proportion to an instantaneous value of modulation signal

b) A way for data and computer communication

c) A numerical coded communication

d) A suitable method for long distance communication

(37) What is Demodulation?

a) Process of varying one or more properties of a periodic waveform

b) Recovering information from modulated signal

c) Process of mixing a signal with a sinusoid to produce a new signal

d) Involvement of noise

(38) Medium which sends information from source to receiver is called

a) Transmitter

b) Transducer

c) Loudspeaker

d) Channel

(39) Telephones send information through wires in form of

a) radio signals

b) electrical signal

c) electromagnetic waves

d) microwaves

(40) Cell phones sent information in form of

a) microwaves

b) electrical signals

c) infrared waves

d) radio waves

(41) In TV transmission, picture signal is _____ modulated.

a) DSB-SC

b) VSB

c) SSB-SC

d) Pulse

(42) The threshold effect is more dominant in

a) AM

b) FM

c) PM

d) PWM

(43) What is the role of transmitter in communication system?

a) to decode a signal to be transmitted

b) to convert one form of energy into other

c) to detect and amplify information signal from the carrier

d) to produce radio waves to transmit data

(44) The method for detecting modulated signal(12.5+5coswmt)coswct is_____.

a) Envelope detector   b) Synchronous detector

c) Ratio detector   d) Both a and b

(45) An AM wave is EAM(t)=(1+0.12cos1014+0.05cos103t)cos106t. The resultant modulat ion index is _____.

a) 0.4   b) 0.3

c) 0.13   d) 0.14

(46) The envelope detector is a_____.

a) Synchronous detector   b) Asynchronous detector

c) Product demodulator   d) Coherent modulator

(47) For phase modulated wave, how is modulation index related to baseband frequency?

a) Linear   b) Inverse

c) Independent   d) Linear square

(48) The Nyquist frequency(fs) and baseband signal frequency (fm) as per sampling theore m are related by

a) fs=fm   b) fs=2fm

c) fs>2fm   d) fs<2fm

(49) Which of the following is a pulse time modulation scheme?

a) PAM   b) PWM

c) PCM   d) DM

(50) Demodulation of PAM signal is done with _____.

a) LPF   b) HPF

c) BPF   d) Schmitt Trigger

(51) The signal-to-quantization noise ratio in PCM depends upon:

a) Message signal bandwidth   b) Sampling rate

c) Number of quantisation levels   d) None of these

(52) A DSB-SC signal can be demodulated using:

a) An envelope detector   b) A discriminator

c) A low-pass filter   d) A PLL

(53) Delta modulation uses _____ bits per sample.

a) One   b) Two

c) Four   d) Eight

(54) A PAM signal can be detected using_____.

a) Low pass filter   b) High pass filter

c) Band pass filter   d) Band stop filter

(55) The use of non uniform quantization leads to_____.

a) Reduction in transmission bandwidth   b) Increase in maximum SNR

c) Increase in SNR for low level signals d) Simplification of quantization process

(56) In case of data transmission, which one of the following systems will give the maximu m probability error?

a) ASK   b) FSK

c) PSK   d) DPSK

(57) ASK modulated signal has the bandwidth _____.

a) Same as the bandwidth of baseband signal b) Half the bandwidth of baseband signal
c) Double the bandwidth of baseband signal d) None of these

(58) The main factor that determines the accuracy of a reconstructed PCM signal is the ____ _____.

a) Signal bandwidth b) Pulse repetition rate
c) Pulse amplitude d) Number of bits used for quantization

(59) In a DM system, the granular(idling) noise occurs when the modulating signal_____ _____.

a) Increase rapidly b) Remains Constant
c) Decrease rapidly d) Creases to exist

(60) The equation $20\sin(10^8 t + 3 \sin 10^9 t)$ represents which modulation?

a) AM b) DSB-SC
c) PM d) FM