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 allotted : 1 Hrs.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) Demodulation of DSB-SC signal requires
a) an envelope detector
b) an integrator
c) a synchronous detector
d) a discriminator

(2) The primary communication resources are
a) Transmitter and Receiver
b) Source and Antenna
c) Transmitted power and Channel bandwidth
d) Channel and Noise

(3) In TV telecast, the sound signal is modulated in
a) VSB
b) SSB
c) AM
d) FM

(4) Regenerative repeaters can be used in
a) analog communication system only
b) digital communication system only
c) analog and digital communication systems
d) none of these

(5) The bit rate of a digital communication system is 34 Mbps. The modulation scheme is QP SK, the bout rate of the system is
a) 68 Mbps
b) 34 Mbps
c) 17 Mbps
d) 85 Mbps

(6) The anti-aliasing is basically a
a) Band pass filter used for band limiting
b) low pass filter used as band limiting filter
c) High pass filter used as band limiting filter
d) none of these

(7) The signal to quantization noise ratio in n bit PCM system
a) is independent of value n
b) increase with increasing value of n
c) depends upon the sampling frequency employ ed
d) decreases with the increasing value of n

(8) In commercial TV transmission in India picture and sound signals are modulated respectiv

ely as

a) VSB and FM
b) VSB and VSB
c) FM and VSB
d) AM and FM

(9) 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

(10) In digital transmission, the modulation technique that requires minimum bandwidth is

a) DM
b) PCM
c) DPCM
d) PAM

(11) 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

(12) Which multiplexing technique transmits digital signal?

a) FDM
b) TDM
c) WDM
d) FDM and TDM

(13) If the deviation is 75 kHz and maximum modulating frequency is 5 kHz, what is the band width of an FM wave?

a) 80 kHz
b) 160 kHz
c) 40 kHz
d) 320 kHz

(14) One of the serious disadvantages of FM transmission is its

a) high static noise
b) limited line of sight range
c) expensive equipment
d) adjacent channel interference

(15) The broadcasting frequency range used in frequency modulator is

a) 30 MHz to 300 MHz
b) 88 MHz to 108 MHz
c) 3 MHz to 30 MHz
d) 1 MHz to 3 MHz

(16) Capture effect is active in

a) AM
b) PAM
c) PCM
d) FM

(17) The length of the antenna to transmit a signal must be at least

a) 1/3 wavelength
b) 1/4 wavelength
c) 2/3 wavelength
d) 2/4 wavelength

(18) Which of the following modulation is analog in nature

a) PCM
b) DPCM
c) DM
d) none of these

(19) Which of the following analog modulation scheme requires the minimum transmitted power and minimum channel bandwidth?

a) VSB
b) DSB-SC
c) SSB
d) AM

(20) Major advantage of Armstrong modulator is that

a) it is capable to producing WBFM signals
b) the centre frequency (carrier frequency when unmodulated) is extremely stable
c) a large depth of modulation can be achieved
d) none of these

(21) In the generation of modulated signal, a varactor diode can be used

a) FM generation only
b) AM generation only
c) PM generation only
d) both AM & PM generation

(22) In phase modulation, the frequency deviation is

a) independent of the modulating signal frequenc y
b) increasingly proportional to the modulating si gnal frequency
c) directly proportional to the modulating signal frequency
d) inversely proportional to the square root of the modulating frequency

(23) The positive RF peaks of an AM voltage rise to a maximum value of 12 volt and drop to a minimum value of 4v. The modulation index assuming single tone modulation is

a) 3
b) 1/3
c) 1/4
d) 1/2

(24) In a certain system, the signal power is 13 dB and noise power is -1 dB. The SNR will be

a) 14 dB
b) -13 dB
c) 12dB
d) 13 dB

(25) A narrowband noise shows

a) amplitude modulation only
b) frequency modulation only
c) both AM and FM
d) none of these

(26) Johnson noise is

a) always white
b) white for all practical purposes
c) never white
d) depends on temperature

(27) Which of the following is not the modulation type for modem specifications?

a) VSB
b) PSK
c) FSK
d) ASK

(28) Maximum efficiency in AM is

a) 25%
b) 50%
c) 33%
d) 83%

(29) On modulating a carrier of frequency f_c by an audio signal f_s the following components ha ve resulted: f_c, f_c+f_s and f_c-f_s .what is this type of modulation likely to be?

a) amplitude modulation DSB
b) single side-band modulation
c) frequency modulation only
d) amplitude or frequency modulation

(30) In an AM signal when the modulation index is one, the maximum power P_t (where P_c is t he carrier power) is equal to

a) P_c
b) $1.5P_c$
c) $2P_c$
d) $2.5P_c$

(31) Which of the following modulated signals can be detected by an envelop detector?

a) DSB-SC
b) DSB-FC
c) FM
d) SSB-SC

(32) One of the drawbacks of FM signal is

a) high noise
b) limited range
c) low signal strength
d) none of these

(33) FM signal can be converted into AM signal using

a) frequency discriminator
b) square law detector
c) slope detector
d) none of these

(34) 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

(35) Ring modulator is generally used for

a) generating SSB-SC signal
b) generating DSB-FC signal
c) generating DSB-SC signal
d) none of these

(36) Vestigial sideband modulation is normally used for

a) HF point-to-point communications
b) monoaural broadcasting
c) TV broadcasting
d) stereo broadcasting

(37) Thermal noise power is proportional to

a) B
b) √B
c) 1/B^2
d) B^2

(38) The biggest disadvantage of PCM is

a) its inability to handle analog signals
b) the high error rate which its quantizing noise introduces
c) its incompatibility with TDM
d) the large bandwidths that are required for it

(39) Which of the following is considered as an AM signal?

a) BPSK
b) DPSK
c) Differential encoded PSK
d) QPSK

(40) A carrier of 100 W is amplitude modulated to the depth of 40%. The total transmitted power is

a) 116 W
b) 112 W
c) 108 W
d) 118 W

(41) Shot noise is produced by

a) Electrons
b) Photons
c) Electrons & Photons
d) none of these

(42) The minimum height of antenna required for transmission in terms of ʎ is

a) 3ʎ/2
b) ʎ/4
c) 2ʎ
d) ʎ

(43) Data transmitted for a given amount of time is called

a) Noise
b) Power
c) Frequency
d) Bandwidth

(44) Why a sinusoidal signal is considered analog?

a) It moves in both positive and negative direction
b) It is positive for one half cycle
c) It is negative for one half cycle
d) It has infinite number of amplitudes in the range of values of the independent variable

(45) Amplitude Modulation suffers from

a) Side-band Suppression
b) Intra-pulse Modulation
c) Cross Modulation
d) Carrier Suppression

(46) Which device is used for tuning the receiver according to incoming signal (especially in TV)?

a) Low pass filter
b) High pass filter

c) Zener diode
d) Varacter diode

(47) Square Law modulators are

a) used for frequency modulation
b) used for pulse width modulation
c) used for amplitude modulation
d) used for phase modulation

(48) 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

(49) A narrow band FM has_____.

a) Two sidebands
b) Equal amplitude sidebands
c) Both sidebands with same phase difference wi th the carrier
d) Does not show amplitude variations

(50) Which one is non-linear modulation i) AM ii) FM iii) PM iv) DSB-SC

a) i) & ii)
b) ii) & iii)
c) iii) & iv)
d) All

(51) Two carrier signals 40MHz are frequency modulated by 4KHz signal such that the bandwi dth is same in both the cases. The peak deviation is in the ratio of _____.

a) 1:4
b) 1:2
c) 1:1
d) 2:1

(52) In a PCM system each quantization level is encoded into 8bits.The signal-to-quantization noise ratio is equal to _____.

a) 48dB
b) 64dB
c) 128dB
d) 256dB

(53) Pulse width modulation and pulse position modulation are two types of _____.

a) Pulse amplitude modulation
b) Pulse time modulation
c) Pulse code modulation
d) All of these

(54) The BW of PCM system having 2 quantisation level is B.If the quantisation level is is enh anced to 8, the resultant BW will be

a) B
b) 2B
c) 3B
d) 4B

(55) Unlike AM, the biggest advantages of PCM is_____.

a) Larger noise
b) Larger bandwidth
c) Incompatability with TDM system
d) Inability to handle analog signals

(56) In a PCM system, if the numbers of quantization levels are 16 and maximum signal freque ncy is 4KHz, the transmission bit rate is_____.

a) 10kbps
b) 12kbps
c) 15kbps
d) 16kbps

(57) Adaptive DPCM is used to _____.

a) Increase bandwidth
b) Decrease bandwidth
c) Increase SNR
d) None of these

(58) Coherent demodulation of FSK signal can be performed using:

a) Matched filter
b) BPF and envelope detectors
c) Discriminator
d) None of these

(59) The process of converting the analog sample into discrete form is called _____.

a) Modulation
b) Multiplexing
c) Quantization
d) Sampling

(60) In FDM systems used for telephone, which modulation scheme is adopted?

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