Online Examinations (Even Sem/Part-I/Part-II Examinations 2020 - 2021

Course Name - - Communication Systems Course Code - BCA203A

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Answer all the questions. Each question carry one mark.

9. 1. Demodulation of DSB-SC signal requires

- _____ an envelope detector
-) an integrator
- a synchronous detector
- 🔵 a discriminator

10. 2. In TV telecast, the sound signal is modulated in

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11. 3. Regenerative repeaters can be used in

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- analog communication system only
- digital communication system only
- analog and digital communication systems
- none of these
- 12. 4. The bit rate of a digital communication system is 34 Mbps. The modulation scheme is QPSK, the bout rate of the system is

- 68 Mbps
- 34 Mbps
- 17 Mbps
- 85 Mbps

13. 5. The anti-aliasing is basically a

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- Band pass filter used for band limiting
- low pass filter used as band limiting filter
- High pass filter used as band limiting filter
- none of these
- 14. 6. The signal to quantization noise ratio in n bit PCM system

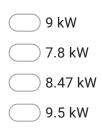
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- 🔵 is independent of value n
- increase with increasing value of n
- depends upon the sampling frequency employed
- decreases with the increasing value of n
- 15. 7. Radio signals are made up of

- voltage and current
- electrons and protons
- electric and magnetic field
- ____ none of thes

16. 8. A special AM broadcasting transmitter radiates 10 kW when the depth of modulation is 60%. The carrier power required is

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17. 9. In digital transmission, the modulation technique that requires minimum bandwidth is

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18. 10. Thermal noise is also called as

- johnson noise
- _____ avalanche noise
- _____ shot noise
- 🔵 flicker noise

19. 11. The spectrum of a signal extends from 200 Hz to 3200 Hz. This signal is

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🔵 a low pass signal

a high pass signal

🔵 a band pass signal

- 🔵 a band stop signal
- 20. 12. The sampling process converts

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- continuous time signal into continuous time signal
- continuous time signal into a discrete time signal
- discrete time signal into a continuous time signal
- ____ discrete time signal into discrete time signal
- 21. 13. Which multiplexing technique transmits digital signal?

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FDM

- TDM
- WDM
- FDM and TDM

22. 14. If the deviation is 75 kHz and maximum modulating frequency is 5 kHz, what is the bandwidth of an FM wave?

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- 80 kHz
 160 kHz
 40 kHz
 - _____ 320 kHz
- 23. 15. Which of the following is not a major communication medium?

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| \bigcirc | free | space |
|------------|------|-------|
|------------|------|-------|

___) water

_____ wires

- fiber optic cable
- 24. 16. One of the serious disadvantages of FM transmission is its

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limited line of sight range

expensive equipment

adjacent channel interference

25. 17. The broadcasting frequency range used in frequency modulator is

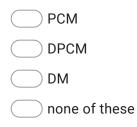
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30 MHz to 300 MHz

- 88 MHz to 108 MHz
- 3 MHz to 30 MHz
- 1 MHz to 3 MHz
- 26. 18. The length of the antenna to transmit a signal must be at least

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- 1/3 wavelength
 1/4 wavelength
 2/3 wavelength
- 2/4 wavelength
- 27. 19. Which of the following modulation is analog in nature



28. 20. In frequency modulation

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- () the frequency of the carrier remains constant
- _____ the amplitude of carrier remains constant
- the amplitude of the carrier wave is varied
- the frequency of the signal is made equal to the carrier frequency
- 29. 21. Armstrong F. M. transmitter performs frequency multiplication in stages

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- to increase the overall S/N ratio
- _____ to reduce bandwidth
- to find the desired value of carrier frequency as well as frequency deviation
- for convenience
- 30. 22. Major advantage of Armstrong modulator is that_____

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

31. 23. In phase modulation, the frequency deviation is

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- independent of the modulating signal frequency
- increasingly proportional to the modulating signal frequency
- directly proportional to the modulating signal frequency
- inversely proportional to the square root of the modulating frequency
- 32. 24. 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



- 33. 25. For which of the following systems, the signal to noise ratio is the highest?Mark only one oval.
 - PAM
 PWM
 PPM
 PAM and PWM

34. 26. What are the three steps in generating PCM in the correct sequence?

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- sampling, quantizing & encoding
- encoding, sampling & quantizing
- sampling, encoding & quantizing
- quantizing, sampling & encoding
- 35. 27. In a certain system, the signal power is 13 dB and noise power is -1 dB. The SNR will be

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- 14 dB
 -13 dB
 12dB
 13 dB
- 36. 28. A narrowband noise shows

- amplitude modulation only
- frequency modulation only
- both AM and FM
- none of these

37. 29. Which of the following is not the modulation type for modem specifications?

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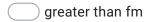
VSB
VSB
PSK
FSK
ASK

38. 30. Maximum efficiency in AM is

Mark only one oval.

- 25%
 50%
 33%
 83%
- 39. 31. If fm is the modulating frequency of an AM wave, the sideband frequencies of this wave are

Mark only one oval.



equal to fm

- less than fm
- none of these

40. 32. On modulating a carrier of frequency fc by an audio signal fs the following components have resulted: fc, fc+fs and fc-fs .what is this type of modulation likely to be?

Mark only one oval.

- amplitude modulation DSB
- single side-band modulation
- frequency modulation only
- amplitude or frequency modulation
- 41. 33. Thermal noise is independent of

Mark only one oval.

bandwidth
 temperature
 center frequency
 Boltzmann constant

42. 34. Which of the following modulated signals can be detected by an envelop detector?

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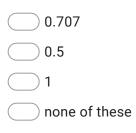
DSB-SC

DSB-FC

- **FM**
- SSB-SC

43. 35.A carrier is simultaneously modulated by two sine waves with modulation indices of 0.3 and 0.4; the total modulation index is

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44. 36. FM signal can be converted into AM signal using

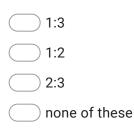
Mark only one oval.

- frequency discriminator
- _____ square law detector
- none of these
- 45. 37. The most common modulation system used for telegraphy is

- frequency-shift keying
- two-tone modulation
- ____ pulse-code modulation
- single-tone modulation

46. 38. What is the ratio of modulating power to total power at 100 percent modulation?

Mark only one oval.



47. 39. Ring modulator is generally used for

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- ____ generating SSB-SC signal
- generating DSB-FC signal
- generating DSB-SC signal
- ____ none of these
- 48. 40. Vestigial sideband modulation is normally used for

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HF point-to-point communications

monoaural broadcasting

TV broadcasting

stereo broadcasting

49. 41. Number of sidebands in FM signal

Mark only one oval.

| 2 |
|---------------|
| <u> </u> |
| zero |
| none of these |

50. 42. Which of the following is considered as an AM signal?

Mark only one oval.

| BPSK |
|--------------------------|
| DPSK |
| Differential encoded PSK |
| () QPSK |

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



- _____ 112 W
- ____ 108 W
- 🔵 118 W

52. 44. Shot noise is produced by

Mark only one oval.

Electrons
 Photons
 Electrons & Photons
 none of these

53. 45. The minimum height of antenna required for transmission in terms of *λ* is

Mark only one oval.



54. 46. Data transmitted for a given amount of time is called

Mark only one oval.

Noise
 Power
 Frequency

Bandwidth

55. 47. Why a sinusoidal signal is considered analog?

Mark only one oval.

- lt moves in both positive and negative direction
- It is positive for one half cycle
- lt is negative for one half cycle
- It has infinite number of amplitudes in the range of values of the independent variable
- 56. 48. What is Demodulation?

Mark only one oval.

- Process of varying one or more properties of a periodic waveform
- Recovering information from modulated signal
- Process of mixing a signal with a sinusoid to produce a new signal
- Involvement of noise
- 57. 49. Medium which sends information from source to receiver is called

- Transmitter
- Transducer
- Loudspeaker
- Channel

58. 50. Cell phones sent information in form of

Mark only one oval.

microwaves

- electrical signals
- infrared waves
- 🔵 radio waves
- 59. 51. Which device is used for tuning the receiver according to incoming signal (especially in TV)?

Mark only one oval.

- Low pass filter
- 🔵 High pass filter
- Zener diode
- 🕖 Varacter diode
- 60. 52. Square Law modulators are

- _____ used for frequency modulation
- _____ used for pulse width modulation
- _____ used for amplitude modulation
- used for phase modulation

61. 53. The threshold effect is more dominant in

Mark only one oval.

| \bigcirc | AM |
|------------|-----|
| \bigcirc | FM |
| \bigcirc | PM |
| \bigcirc | PWM |

62. 54. An AM wave is EAM(t)=(1+0.12cos1014+0.05cos103t)cos106t. The resultant modulation index is ______.

Mark only one oval.

- 0.4
- 0.3
- 0.13
- 0.14

63. 55. A narrow band FM has_____.

- 🔵 Two sidebands
- _____ Equal amplitude sidebands
- Both sidebands with same phase difference with the carrier
- Does not show amplitude variations

64. 56. Two carrier signals 40MHz are frequency modulated by 4KHz signal such that the bandwidth is same in both the cases. The peak deviation is in the ratio of

Mark only one oval.

_____•



65. 57. The Nyquist frequency(fs) and baseband signal frequency (fm) as per sampling theorem are related by

Mark only one oval.

fs=fm fs=2fm fs>2fm fs<2fm

66. 58. In a PCM system each quantization level is encoded into 8bits.The signal-toquantization noise ratio is equal to ______.



- (____) 64dB
- 128dB
- 256dB

67. 59. Demodulation of PAM signal is done with _____.

Mark only one oval.

- HPF
- BPF
- Schmitt Trigger
- 68. 60. Unlike AM, the biggest advantages of PCM is_____

Mark only one oval.

- Larger noise
- ____ Larger bandwidth
- Incompatability with TDM system
- Inability to handle analog signals
- 69. 61. The signal-to-quantization noise ratio in PCM depends upon:

- Message signal bandwidth
- Sampling rate
- Number of quantisation levels
- None of these

70. 62. In a PCM system, if the numbers of quantization levels are 16 and maximum signal frequency is 4KHz, the transmission bit rate is ______.

Mark only one oval.

- 10kbps
- 15kbps
- .
- _____16kbps
- 71. 63. A DSB-SC signal can be demodulated using:

Mark only one oval.

- An envelope detector
- A discriminator
- 🔵 A low-pass filter
- 🔵 A PLL
- 72. 64. Which of the following modulation technique is most affected by noise?

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ASK

- **PSK**
- **FSK**
- None of these

73. 65. Coherent detection of binary ASK signal requires:

Mark only one oval.

Phase synchronization

Timing synchronization

- Amplitude synchronization
- None of the above
- 74. 66. In a DM system, the granular(idling) noise occurs when the modulating signal_____.

Mark only one oval.

- Increase rapidly
- Remains Constant
- Decrease rapidly
- Creases to exist
- 75. 67. Calculate power in each sideband, if power of carrier wave is 176W and there is 60% modulation in amplitude-modulated signal?

Mark only one oval.

13.36W
52W
67W
15.84W

76. 68. Over modulation results in?

Mark only one oval.

Distortion

- Weakens signal
- Strengthens the signal
- provides immunity to noise
- 77. 69. What do you understand by the term "carrier"?

Mark only one oval.

- waveform with constant frequency, phase and amplitude
- waveform for which frequency, amplitude or phase is varied
- waveform with high amplitude, low frequency and constant phase
- waveform to be transmitted
- 78. 70. If the modulating frequency of a carrier wave varies between 700Hz and 7KHz, find its bandwidth.

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- 10 KHz
- _____ 23 KHz
- (17.3 KHz
- 12.6 KHz

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