

JNTU ONLINE EXAMINATIONS [Mid 2 - AC]

1. The Signal to Noise of Fm at modulation index = 5 is _____ factor of S/N of AM

- a. 57
- b. 70
- c. 75
- d. 81

2. S/N ratio improvement is proportional to the square of the bandwidth of transmission in

- a. FM
- b. Conventional AM
- c. AM-DSB-SC
- d. AM-SSB-SC

3. The Signal to Noise ratio of DSB-SC Scheme is

- a. 3
- b. 2
- c. 1
- d. Zero

4. Which of the following demodulation methods exhibit threshold effect

- a. Synchronous demodulation of AM
- b. Envelope detection of AM
- c. Square law detector
- d. Balanced demodulator

5. Noise performance of conventional AM, when compared with that of suppressed carrier systems is

- a. Superior
- b. Inferior
- c. Same
- d. Can't be compared

6. The Signal to Noise ratio of SSB-SC scheme is

- a. 3
- b. 2
- c. 1
- d. zero

7. The Signal to Noise ratio of VSB-SC scheme is

- a. 3
- b. 2
- c. 1
- d. zero

8. Noise performance of AM-DSB-SC signal is same as that of AM-SSB-SC system due to

- a. More i/p signal power
- b. More bandwidth
- c. Less i/p signal power
- d. Less Noise power

9. The Signal to Noise ratio of FM demodulator is

- a. $3 Kf^2$
- b.
- c. $2 Kf^2$
- d. Kf^2

10. The S / N ratio of FM to S/N ratio of AM is

- a. ν^3 modulation index of FM
- b. modulation index of FM / ν^3
- c. ν^3 modulation index of AM
- d. 1

11. The ratio of S/N of PM to S/N of AM is given by

- a. $f_m / \Delta f$

b. $\Delta f / f_m$

- c. $f_m \times \Delta f$
- d. $\Delta f + f_m$

12. In PM, the power spectral density of the O/P noise, varies with frequency as

- a. Parabola
- b. Hyperbola
- c. Uniform
- d. circle

13. In order to realize an improvement in S/N ration in FM over AM, we must have the FM modulation index greater than

- a. $1 / \nu^3$
- b. ν^3
- c. $2 / \nu^3$
- d. $\nu^3 / 2$

14. For a modulation index $\beta > 0.5$ the noise performance of FM when compared to AM is

- a. Better
- b. Same
- c. worst
- d. Can't be compared

15. Threshold improvement in FM is due to

- a. Preemphasis at the Tx end
- b. Deemphasis at the Rx end
- c. Preemphasis at the Rx end
- d. Deemphasis at the Tx end

16. The transition point between NBFM and WBFM is for the value of modulation index

- a. 0.5
- b. 0.6
- c. 0.4
- d. 0.7

17. The pre-emphasis, de-emphasis arrangement in FM results in

- a. Increase of BW
- b. Decrease of BW
- c. No effect of BW
- d. depends on frequency

18. In FM, the power spectral density of the O/P noise, varies with frequency as

- a. Parabola
- b. Hyperbola
- c. Uniform
- d. circle

19. The SNR of PM over AM is _____ of BW of Transmission

- a. Same
- b. double
- c. square
- d. quadruple

20. Pre-emphasis in FM is used at

- a. Receiving end
- b. Transmitting end
- c. In the Channel
- d. Before Demodulation

21. De-emphasis circuit resembles a

- a. LPF
- b. HPF
- c. BPF

d. BEF

22. A Buffer amplifier is placed in between

- a. Two AF Amplifiers
- b. Crystal oscillator and harmonic generator**
- c. Two RF amplifiers
- d. Modulated and modulating amplifier

23. Harmonic generator is operated as a _____ amplifier

- a. C**
- b. A
- c. AB
- d. B

24. Broadcast transmitters are designed for transmitting

- a. Coded signal
- b. Telephone signal
- c. Speech or music**
- d. Continuous carrier

25. Long waves transmitter works in the frequency range

- a. 300 KHz**
- b. 1MHz
- c. 20 MHz
- d. 60 MHz

26. A Medium waves transmitter works in the frequency range

- a. 2.5 to 7.5 MHz
- b. 500 KHz to 1600 KHz**
- c. 7.5 to 30 MHz
- d. 100 to 300 KHz

27. The transmitting station is a slave of

- a. Engineers
- b. Studio**
- c. Receiving Center
- d. Power

28. Microwave transmitters have their working frequencies at are about

- a. 10MHz
- b. 80 MHz
- c. 100 MHz
- d. 1000MHz**

29. Abrupt changes in load on master oscillator resulting

- a. Frequency deviation
- b. frequency Scintillation**
- c. Drift
- d. Squegging

30. The only disadvantage of crystal oscillator as Master oscillator is

- a. large size
- b. unstable frequency
- c. mounting capacitance
- d. fixed frequency**

31. One of the following is used in radio telephone transmitters

- a. Transistor
- b. Vacuum Tube
- c. VODAS**
- d. FET

32. A Collector modulated transmitter has supply voltage of 12 Volts and collector current of 1 A. The modulated power for 100 % modulation is

a. 6W

b. 12 W

- c. 18W
- d. 24W

33. While switching on the transmitter anode voltages should not be applied with out

- a. Staff on duty
- b. Charging feeder lines
- c. switching on the cooling system**
- d. signal from studio

34. The component to produce AM at RF frequencies is

- a. Varactor
- b. Thermistor
- c. PIN diode**
- d. Transistor

35. Boosting high frequency components in modulating signal is called

- a. Echo suppressing
- b. Attenuating
- c. Tone correction
- d. preemphasis**

36. A device that reduces the gain of A. F. amplifier when the input exceeds predetermined value is called

- a. Peak clipper**
- b. Detector
- c. echo suppressor
- d. Discriminator

37. VHF transmitters use the follow the system of cooling

- a. Forced air cooling**
- b. water cooling
- c. Natural cooling
- d. Heat signals will be provided

38. A class C amplifier has supply voltage of 12 V and collector current of 1A. Its efficiency is 80 %. The RF output power is

- a. 9.6W
- b. 12W
- c. 15W**
- d. 24W

39. The final carrier frequency of an amplitude modulated transmitter is obtained by the use of

- a. Crystal Oscillator
- b. L C Oscillator
- c. Harmonic generators**
- d. Frequency dividers

40. The frequency drift allowed in medium AM transmitters

- a. 10 Hz**
- b. 15Hz
- c. 1Hz
- d. 100

41. Most of the power in AM signal lies in its

- a. Carrier**
- b. USB
- c. LSB
- d. Both USB and LSB

42. In AM modulator circuits, the carrier and the modulating signal are

- a. Multiplied

b. Added

- c. Subtracted
- d. Mixed

43. An AM transmitter shall produce 1KW of carrier power with 200V supply. The load seen by the amplifier is

- a. 5?
- b. 10?
- c. 20?**
- d. 40?

44. The frequency drift allowed for shoth wave and UHF transmitters is

- a. +0.02%
- b. -0.1 %
- c. +0.05%
- d. 0.002 %**

45. The frequency tolerance of FM broadcast stations is

- a. 20Hz
- b. 200Hz
- c. 2000Hz**
- d. 20000Hz

46. A push pull power amplifier that is used for carrier suppression is called

- a. Harmonic generator
- b. Balanced modulator**
- c. Frequency multiplier
- d. Frequency mixer

47. The disadvantage of low level modulation is

- a. A.F. power required is low
- b. Class A.F. amplifiers can be used
- c. Class B.R.F. amplifiers are to be used after modulation**
- d. The system costs more

48. The range of F.M. transmitter working in the UHF range is

- a. Small
- b. large
- c. very large
- d. line of sight distance**

49. A PLL FM generator has $K_f = 100$ KHz/V and peak deviation of 75 KHz. The RMS modulating voltage required is around

- a. 0.25V
- b. 0.5V**
- c. 0.75V
- d. 1.3V

50. The maximum deviation used in police FM radio is

- a. 3KHz
- b. 5KHz**
- c. 15KHz
- d. 20KHz

51. An RF amplifier is available at 40 MHz. To which of the following it can be employed

- a. AM Broadcast
- b. FM broadcast
- c. UHF TV broadcast
- d. Radar**

52. The ability of a receiver to respond to the weakest signal is called

- a. Sensitivity**
- b. selectivity

- c. fidelity
- d. Signal handling ability

53. The pre distorter in Armstrong F.M generation is nothing but

- a. Differentiator**
- b. Integrator
- c. Attenuator
- d. Rectifier

54. Straight receiver with only crystal detector and head phone will work

- a. Any where
- b. 10 Km from Tx
- c. areas of local Tx**
- d. 50 Km from

55. Good Adjacent channel selectivity can be obtained by the use of

- a. High IF
- b. TRF amplifiers
- c. RF amplifiers
- d. Low I**

56. The ability of a receiver to distinguish the wanted and unwanted signals is

- a. Sensitivity
- b. selectivity**
- c. S/N ratio
- d. efficiency

57. All commercial receivers employ IF between

- a. 200 to 300 KHz
- b. 455 to 465 KHz**
- c. 740 to 840 KHz
- d. 12 to 13 KH

58. One of the following is a special feature of communication receiver

- a. Bandwidth
- b. on-off switch
- c. AFC
- d. volume control**

59. The output from radio receiver varies abruptly many times with out notice. This is called

- a. Hum
- b. Motor boating
- c. fading**
- d. noise

60. The number of mixer stages of a triple detection receiver

- a. 1
- b. 3
- c. 4
- d. 2**

61. The selectivity of a TRF receiver is

- a. too high to reduce fidelity**
- b. low
- c. medium
- d. verylow

62. A radio receiver has the sensitivity of order $0.01 \mu\text{v}$. It is

- a. FM receiver
- b. SSB receiver
- c. AM receiver
- d. Communicationreceiver**

63. In a superheterodyne receiver amplification of the signal after converter is done at

- a. Any frequency
b. Only IF
c. signal frequency
d. higher than signal frequency
- 64. Sensitivity of a superheterodyne receiver is dependent on**
a. only audio section
b. IF & RF amplifiers
c. Only RF amplifiers
d. Only IF amplifier
- 65. A TRF receiver requires gang capacitor with sections as many as**
a. number of tubes
b. number of stages of amplifiers
c. number of inductors
d. number of tuned circuits
- 66. In a superheterodyne receiver frequency conversion takes place at**
a. 2 places
b. 3 places
c. 4 places
d. doesnot
- 67. The local Oscillator of a superheterodyne receiver will be tuned to a frequency**
a. Of the signal
b. lower than signal frequency
c. Signal frequency + IF
d. signal frequency - IF
- 68. The RF amplifier in a superheterodyne receiver is**
a. reduce image signal
b. reduce adjacent channel signal
c. improving gain
d. reducing tuning ratio
- 69. Selectivity of a receiver is dependent on**
a. mixer
b. IF amplifier
c. mixer and IF
d. RF & Mixer
- 70. Fidelity of a super heterodyne receiver is dependent on**
a. RF and audio section
b. IF section
c. RF & IF sections
d. Audio section only
- 71. The following is not one of the common stage for AM & FM receivers**
a. IF amplifier
b. limiter
c. ratio detector
d. mixe
- 72. Indicate which one of the following blocks is used in both communication receivers and broadcast receivers**
a. Squelch
b. beat frequency oscillator
c. mixer
d. Limiter
- 73. RF circuit alignment adjusts the following component**
a. ganged capacitor
b. padder
c. RF trimmer
d. mixer trimmer
- 74. A double conversion communication receiver indicate that it has**
a. IF
b. IF's
c. IF & RF
d. double bands
- 75. A receiver with poor IF selectivity will have poor**
a. sensitivity
b. Blocking
c. Double spotting
d. diversity reception
- 76. Superheterodyne receiver is tuned to a frequency 540 KHz, the IF is 455 KHz. The image signal is**
a. 1295 KHz
b. 385 KHz
c. 1750 KHz
d. 420 KHz
- 77. In a super heterodyne receiver**
a. The output circuit of mixer is tuned to signal frequency
b. Local Oscillator frequency is double IF
c. RF works at 455 KHz
d. Local oscillator frequency is greater than incoming signal frequency
- 78. Adjusting all the RF circuits to suit the calibrating of wave length frequency of dial is called**
a. tuning
b. adjusting
c. tracking
d. misalignment
- 79. The local oscillator of a broadcast receiver is tuned to s frequency higher than the incoming frequency**
a. to allow adequate frequency coverage without switching
b. to allow the image frequency rejection
c. to permit easier tracking
d. otherwise intermediate frequency cannot be produced
- 80. For best selectivity stability and fidelity, the IF must be**
a. high
b. low
c. medium
d. arbitrary
- 81. The minimum channel band width required for transmitting 3 baseband signals, each is band limited to 3 KHz**
a. 6 KHz
b. 3 KHz
c. 9 KHz
d. 1.5 KH
- 82. A base band signal band limited to 5KHz is to be reconstructed from its samples. The minimum pass bandwidth of the reconstruction filter should be**
a. 10 KHz
b. 2.5 KHz
c. 5 KHz

d. 20 KHz

83. The circuit that reduces the gain of RF amplifiers when the input signal increases beyond a predetermined value is

- a. Crystal filter
- b. differentiation
- c. delayed AVC**
- d. Simple AVC

84. Very large IF is used to eliminate

- a. IF interference
- b. harmonics

c. image signal interference

- d. microphonics

85. Which of the statements about the amplitude limiter is untrue

a. The circuit is always biased in class C, by virtue of the leak type bias

b. When input increases fast the threshold of limiting, the gain decreases to keep the output constant

- c. The output must be tuned
- d. Leak type bias must be used

86. Noise limiter is analogous to

a. Clipper

- b. Clamper
- c. Rectifier
- d. AGC

87. From the point of view, the main difference between tube and transistor receivers is that the latter

a. require AGC power rather than the voltage

- b. do not really need AGC because overloading causes limiting
- c. have troubles because AGC is not very effective in them
- d. must have IF stages even more stabilized than they are normally

88. Band limited signal is

a. Band pass signal with lower frequency limit equal to zero

- b. Band pass signal with Upper frequency limit equal to zero
- c. Band pass signal with infinite BW
- d. Band pass signal both with upper and lower frequency limits

89. The image frequency signal in a receiver

a. is not rejected by IF stages

- b. is created in the receiver itself
- c. due to insufficient adjacent channel rejection
- d. independent of the frequency to which the receiver is tuned

90. Indicate the false statement : If the Intermediate frequency is high

- a. the local oscillator need not be highly stable
- b. the selectivity will be poor
- c. image frequency rejection is very good**
- d. tracking will be improved

91. In a radio receiver with simple AGC

a. an increase in signal strength produces more AGC

- b. the audio stage gain is normally controlled by the AGC

c. the faster the AGC time constant, the more accurate the output

d. the highest AGC is produced between stations

92. The effect of delayed AGC is to increase the following characteristics of a receiver

a. Sensitivity

- b. Selectivity
- c. Image rejection
- d. thresho

93. The following circuit in a receiver compensates for a wide range of input signal levels

a. Amplitude limiter

b. AGC

- c. AFC
- d. noise limiter

94. A typical squelch circuit

a. cuts off the IF amplifier when the AGC is minimum

b. cuts off the IF amplifier when the AGC is maximum

- c. eliminates the RF interference when the signal is weak
- d. cuts off the audio amplifier when the carrier is block

95. Indicate the false statement : If the Intermediate frequency is low

- a. the frequency stability of the local oscillator will be very high
- b. the selectivity becomes too sharp**
- c. selectivity becomes poorer
- d. sidebands are partially cutoff

96. To prevent overloading of the last stage of IF amplifier

- a. Variable sensitivity should be used
- b. Squelch circuit should be used**
- c. Variable selectivity should be used
- d. Double conversions should be used

97. Indicate which one of the following frequencies is not usually used as IF

- a. 10.7MHz
- b. 455 KHz
- c. 36 MHz**
- d. 26 MHz

98. TDM can be implemented using

- a. AM
- b. PAM**
- c. FM
- d. VSB-AM

99. $f_s \gg 2f_m$ results in

- a. Aliasing
- b. Distortion
- c. Inefficient Channel utilization**
- d. Attenuation

100. In a dual gate MOSFET IF amplifier, the dc AGC voltage is applied to

- a. Draw
- b. Source
- c. gate1
- d. gate 2**

101. Which functional block readily identifies it is an FM receiver

- a. RF amp
- b. IF amp
- c. detector**

d. mixer

102. AGC filter uses normally the values of R = 500 K and C equal to

- a. $1\mu\text{F}$
- b. $2\mu\text{F}$
- c. $10\mu\text{F}$
- d. $20\mu\text{F}$

103. The width (τ) of a sample of a base band signal of band limited frequency f_m can have a value

- a. $\tau \geq 1/f_m$
- b. $\tau \geq 1/2 f_m$
- c. $\tau = 1/2 f_m$
- d. $\tau \geq 1/4 f_m$

104. Three point tracking is achieved with

- a. Padder Capacitor
- b. double spotting
- c. blocking
- d. double conversion

105. With correct three point tracking a maximum tracking error as low as _____ is possible

- a. 2.5 KHz
- b. 4 KHz
- c. 3 KHz
- d. 0.5 KHz

106. Aliasing occurs due to which of the following

- a. $f_s = 2 f_m$
- b. $T_s = 1 / 2 f_m$
- c. $T_s = 1 / f_m$
- d. $T_s = 1 / 2 f_m$

107. A Pulse width modulated signal can be generated by

- a. An astable multivibrator
- b. A monostable multivibrator
- c. Integrating the signal
- d. Differentiating the PPM signal

108. PWM can be demodulated using

- a. Integrator and LPF
- b. Differentiator and LPF
- c. Integrator and HPF
- d. Differentiator and HPF

109. PPM can be generated from

- a. AM
- b. FM
- c. PWM
- d. PM

110. Quantising noise in a PCM system can be reduced by

- a. Decreasing the number of standard levels
- b. Having more no. of samples per second
- c. Using low noise circuitry in PCM receiver
- d. Increasing the number of standard levels

111. In an FM receiver the stage between IF amplifier and detector is called

- a. Mixer
- b. Limiter
- c. local Oscillator
- d. AF amplifier

112. FM capture effect is due to the following circuit

- a. Limiter

b. AGC

c. Discriminator

d. Deemphasis

113. Which of the following is used to convert PPM into PWM

- a. Clipping Circuit
- b. Bistable Multivibrator
- c. Astable Multivibrator
- d. Clamping Circuit

114. To undo the distortion caused by the channel, which of the following can be used

- a. Amplifier
- b. Equalizer
- c. Attenuator
- d. Clamper

115. Quantising noise occurs in

- a. Time-division multiplexing
- b. Frequency-division multiplexing
- c. Pulse-code modulation
- d. Pulse position modulation

116. Pulse communication system that is inherently highly immune to noise is

- a. PWM
- b. PAM
- c. PPM
- d. PCM

117. Companding is used

- a. To overcome quantizing noise in PCM
- b. To protect small signals in PCM from Quantising noise
- c. In PCM receivers to reduce impulse noise
- d. To increase the power content of the modulated signal