

BSNL TTA Question Paper-Communication Specialization 2007

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

- (a) FSK
- (b) PSK.
- (c) PCM
- (d) single tone modulation
- (e) Two tone modulation

(2) VSB is an abbreviation of vestigial sideband, is derived by filtering

- (a) DSB
- (b) AM
- (c) either (a) or (b)
- (d) PM

(3) The Hartely law states that

- (a) The maximum rate of information transmission depends on the depth of modulation
- (b) The maximum rate of information depends on the channel bandwidth.
- (c) Only binary codes may be used
- (d) Redundancy is essential

(4) The FM signal with, a modulation index m_f is passed through a frequency tripler. The wave in the output of the tripler will have a modulation index of

- (a) $m_f/9$
- (b) $m_f/3$
- (c) m_f
- (d) $3 m_f$
- (e) $9m_f$

(5) In high power AM transmission, modulation is done at

- (a) Buffer stage
- (b) Oscillator stage
- (c) RF power stage
- (d) If stage

(6) Companding is used

- (a) In delta modulator to combat noise
- (b) To limit amplitude in PCM transmitters.
- (c) In PWM for working it with TDM
- (d) To protect small signals in PCM from quantizing distortion
- (e) In PCM to reduce the SNR

(7) In PCM system the SNR of the output signal increases

- (a) Inversely with bandwidth
- (b) Exponential with bandwidth
- (c) With rate of sampling
- (d) At low frequencies only

(8) Armstrong modulator generates

- (a) Phase modulated signal
- (b) Frequency modulated signal
- (c) Both of these
- (d) Pulse code modulated signal
- (e) AM and PCM signals

(9) A Klystron is a cavity acting as buncher and catcher is used as microwave tube for

- (a) Guiding waves
- (b) Velocity modulation
- (c) frequency modulation
- (d) impedance matching
- (e) All of these

(10) Easily adjustable tuning component in a waveguide is

- (a) plunger
- (b) plunger and stub
- (c) screw
- (d) both (a) and (c)
- (e) both (b) and (c)

(11) A ferrite is

- (a) A non-conductor with magnetic properties
- (b) A conductor with magnetic properties
- (c) A semiconductors
- (d) An insulator which attenuates magnetic fields
- (e) A compound with good conductivity.

(12) Vacuum tubes eventually fail at microwave frequencies because of their

- (a) Inter electrode capacitance
- (b) Small series inductance
- (c) Large shunt capacitance
- (d) Short transit time
- (e) Increased noise figure

(13) The biggest disadvantage the IMP ATT diode has is its

- (a) Low Efficiency
- (b) high noise
- (c) Low BW
- (d) inability to provide pulse operation
- (e) low power handling ability

(14) In AM transmission the frequency, which is not transmitted is

- (a) carrier frequency
- (b) audio frequency
- (c) upper side frequency
- (d) lower side frequency

(15) FM broadcast band lies in

- (a) VHF
- (b) UHF
- (c) SHF
- (d) HF

(16) Automatic gain control is used

- (a) to maintain the tuning correct
- (b) to reduce the voltage of loud passage of music
- (c) to maintain the same amount of output, when stations of different strength are received
- (d) to increase the amplification at high frequencies

(17) The modulation system inherently is most noise resistant in

- (a) SSB suppressed carrier
- (b) FM
- (c) PPM
- (d) PCM

(18) In practical waveguide act as

- (a) low pass filter

- (b) high pass filter
- (c) band pass filter
- (d) band stop filter

(19) The antenna efficiencies achieved in practice depend upon

- (a) wave length
- (b) impedance
- (c) frequency
- (d) none of above

(20) The process of compressing the digital codes at the transmitter and then expanding them back to their original form at receiver is known as

- (a) Quantizing
- (b) companding
- (c) step sizing
- (d) modulation

(21) Digital transmission efficiency is given by

- (a) information bits/total bits
- (b) total bits/information bits
- (c) redundant bits/information bits
- (d) none of the above

(22) The speed of BRI ISDN interface is

- (a) $2B + D$
- (b) $2D + B$
- (c) $30B + D$
- (d) $30D + B$

(23) Which of the following is not a microwave generation source?

- (a) Klystron
- (b) Magnetron
- (c) TWT
- (d) Diode

(24) A signal of maximum frequency of 1 KHz is sampled at Nyquist Rate. The interval between two successive samples is:

- (a) 50 micro seconds
- (b) 100 micro seconds
- (c) 500 micro seconds
- (d) 1000 micro seconds

(25) In order to get back the original signal, it is necessary to use:

- (a) low pass filter
- (b) high pass filter
- (c) band pass filter
- (d) band reject filter

(26) Man made noise is caused by:

- (a) Solar eruptions
- (b) Distant Stars
- (c) Lightning Discharges
- (d) Arc discharge in electric machines

(27) At microwave frequencies, the size of antenna becomes

- (a) very large
- (b) large
- (c) small
- (d) very small

(28) Due to curvature of earth, microwave repeaters are placed at distance of about

- (a) 10 Km
- (b) 50 Km
- (c) 200 Km
- (d) 500 Km

(29) For handling large microwave power, the best medium is

- (a) coaxial line
- (b) rectangular waveguide
- (c) stripline
- (d) circular wave guide

(30) An attenuator is used with TWT to

- (a) prevent oscillations
- (b) increase gain
- (c) prevent saturation
- (d) help bunching

(31) TWT is basically

- (a) an oscillator
- (b) tuned amplifier
- (c) wideband amplifier

(d) an audio amplifier

(32) The negative resistance in Gunn diode is due to

(a) electron transfer to a less mobile energy level

(b) high reverse bias

(c) electron domain formation at the junction

(d) tunneling across the junction

(33) Which of the following sinusoidal oscillator is preferred for microwave frequencies?

(a) resonant circuit oscillator

(b) RC phase shift oscillators

(c) negative resistance oscillators

(d) all of the above

(34) When electromagnetic waves are propagated in a waveguide

(a) they travel along the walls of the waveguide

(b) they travel through the dielectric without touching the walls

(c) they are reflected from the walls but do not travel along the walls

(d) none of above

(35) Wave guides are generally made of

(a) Cast iron or steel

(b) White metal or gun metal

(c) bronze or aluminium

(d) plastic or bakelite

(36) The cut off frequency of a wave guide means

(a) lower frequencies will not be propagated

(b) it determines the dimensions of the wave guide

(c) frequency at which zero transmission takes place

(d) None of above

(37) In case of matched load

(a) Transmission is zero

(b) reflection is zero

(c) reflection is unity

(d) transmission is equivalent to reflection

(38) In an AM wave with 100% modulation, the carrier is suppressed. The percentage of power saving will be

(a) 100%

- (b) 50%
- (c) 25%
- (d) 66.7%

(39) The function of AM detector circuit is

- (a) to rectify the input signal
- (b) to discard the carrier
- (c) to provide the audio signal
- (d) All of the above

(40) In FM, the noise can be further decreased by

- (a) decreasing deviation
- (b) increasuing deviation
- (c) keeping deviation constant
- (d) none of these

(41) In PPM, message resides in

- (a) Pulses
- (b) time location of pulse edges
- (c) none of these

(42) Which of the following pulse systems is preferred for communication in presence of noise?

- (a) PAM
- (b) PDM
- (c) PPM
- (d) none of above

(43) Which of the following pulse systems requires higher bandwidth

- (a) PAM
- (b)PDM
- (c)PPM
- (d)none of these

(44) The audio frequency range lies between

- (a) 20 to 20,000 Hz
- (b) 20 to 20,000 KHz
- (c) 400 to 8,000Hz
- (d) 500 to 5,000 Hz

(45) Maximum undistorted power output of a transmitter is obtained when its modulation is:

- (a) more than 100%

- (b) 100%
- (c) less than 100%
- (d) 50%

(46) The AGC voltage in a radio receiver is proportional to

- (a) the amount of modulation
- (b) the amplitude of audio signal
- (c) the amplitude of IF carrier
- (d) none of these

(47) An FM transmitter has maximum frequency deviation of 75 KHz and reproduces audio signal up to 15 KHz. Minimum channel width required, in KHz is

- (a) 180
- (b) 120
- (c) 90
- (d) 60

(48) With 100% modulation, ratio of side band power to total power transmitted in an amplitude modulated wave is

- (a) $2/3$
- (b) $1/3$
- (c) $1/2$
- (d) $1/4$

(49) To increase the Q factor of an induction, it would with

- (a) thicker wire
- (b) thinner wire
- (c) longer wire
- (d) wire with heavy insulation

(50) Power factor of a purely resistive circuit is:

- (a) zero
- (b) one
- (c) 0.5
- (d) infinity