# BSNL Senior Executive Sample Paper

**Q1.** What will be the change in bandwidth of the frequency modulation signal as the frequency of modulation tends to increase from 12 kHz to 24 kHz?
(a) Bandwidth remains unaffected
(b) 40 kHz
(c) 58 kHz
(d) 24 kHz

**Q2.** Modulation of the source signal with multiple frequency components, is called _____
(a) Frequency Modulation
(b) Phase Modulation
(c) Multitone Modulation
(d) Amplitude Modulation

**Q3.** Which of the following is NOT a property of a pre-emphasis circuit?
(a) It improves the noise immunity
(b) It is basically a low pass filter
(c) It increases the amplitude of the modulation signals at higher modulating frequencies
(d) It is used before frequency modulation.

**Q4.** The satellite communication link between two points is established with an uplink carrier-to noise ratio of 30 dB and a downlink carrier-to noise ratio of 20 dB. The overall C/N ratio is close to _____. (Take log(90.90) = 1.958)
(a) 20.3 dB
(b) 19.5 dB
(c) 18.7 dB
(d) 18 dB

**Q5.** For satellite communication the standard uplink and downlink frequencies, respectively, in C-band are :
(a) 12 GHz and 9 GHz
(b) 6 GHz and 4 GHz
(c) 4 GHz and 6 GHz
(d) 12 GHz and 8GHz

**Q6.** By measuring the VSWR values in the main and auxiliary waveguide of a directional coupler, we can determine is–
(a) phase co-relation and efficiency
(b) frequency shift and phase variations
(c) attenuation and radiation efficiency
(d) directivity and coupling factor

**Q7.** A dual directional coupler is connected in a microwave reflectometer measurement setup. The reading of the power meter in the forward direction is 100 mW and in the reverse direction 4 mW. The VSWR is :
(a) 4
(b) 0.4
(c) 1.5
(d) 10

**Q8.** Which of the following statement is FALSE for refractive index of a Graded index fiber?
(a) Decreasing from core axis to core end
(b) Constant in the cladding
(c) Maximum at cladding
(d) Maximum at core axis

**Q9.** The band of frequency suitable for the optical wave communication is _____.
(a) 3 kHz to 30 kHz
(b) 3 MHz to 30 MHz
(c) 30 MHz to 300 MHz
(d) 30 THz to 300 THz

**Q10.** The refractive index of the core and cladding of an optical fiber are 1.40 and 1.14 respectively. How much is aperture?
(a) 0.646
(b) 0.312
(c) 0.552
(d) 0.812

**Q11.** For a feeder length of 0.52λ which of the following will be the reflective length?
(a) 0.23λ
(b) 0.425λ
(c) 0.35λ
(d) 0.525λ

**Q12.** A satellite orbiting in 600 km orbit transmits 5 GHz frequency. The Doppler shift observed at the ground station, when the satellite is overhead of the station is:
(a) Zero
(b) Maximum
(c) Infinity
(d) None of the above

**Q13.** For direct reception of TV signals from a communication satellite, the type of antenna required is:
(a) Horn
(b) Parabolic
(c) Chicken mesh
(d) Loop

**Q14.** MTI radar is based on:
(a) Einstein theory
(b) Faraday's laws of EM induction
(c) Doppler effect
(d) Edison effect

**Q15.** Which of the following is the measuring device used in satellite communication?
(a) Transponder
(b) Payload
(c) Apogee
(d) Perigee

**Q16.** Calculate the EIRP (in dBW) of a satellite downlink at 15 GHz operates with a transmitting power of 5 watt and an antenna gain of 45.2 dB.
(a) 42
(b) 49
(c) 50
(d) 52

**Q17.** The noise caused by random variations in the arrival of electrons or holes at the output electrode of an amplifying device is:
(a) White noise
(b) Flicker
(c) Shot noise
(d) Transit time noise

**Q18.** A resistor of value R ohms generates a noise voltage of 10 microvolts under certain conditions. If the resistor value is doubled, then the noise voltage under same conditions will be:
(a) 10 microvolts
(b) 20 microvolts
(c) 14.14 microvolts
(d) 5 microvolts

**Q19.** Radio frequency noise is valid for all of the following except:
(a) Mixer stage
(b) IF stage
(c) Baseband recording system
(d) Preamplifier of radio receiver

**Q20.** A system has a receiver noise resistance of 50 Ohm. It is connected to an antenna with an input resistance of 50 Ohm. Calculate the noise figure of the system.
(a) 1
(b) 2
(c) 50
(d) 101