Program: BE Electronics and Telecommunication Engineering

Curriculum Scheme: Revised 2012

Examination: Third Year Semester V

Course Code: ETC502 and Course Name: Analog Communication

Time: 1hour　　　　　　　　　　　　　　　　　　　　　　　　　Max. Marks: 50

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Note to the students:- All the Questions are compulsory and carry equal marks.

Q1.	**In a communications system, noise is most likely to affect the signal**
Option A:	at the transmitter
Option B:	in the channel
Option C:	in the information source
Option D:	at the destination
Q2.	**Indicate the false statement. Modulation is used to**
Option A:	a. reduce the bandwidth used
Option B:	b. separate differing transmissions
Option C:	c. ensure that intelligence may be transmitted over long distances
Option D:	d. allow the use of practicable antennas
Q3.	**The modulation technique that uses the minimum channel bandwidth and transmitted power is**
Option A:	AM
Option B:	DSB-SC
Option C:	VSB
Option D:	SSB
Q4.	**The process of recovering information signal from received carrier is known as**
Option A:	Detection
Option B:	Modulation
Option C:	Demultiplexing
Option D:	Sampling
Q5.	**Ideal bandwidth of FM is**
Option A:	200kHz
Option B:	10kHz
Option C:	infinite
Option D:	8kHz
Q6.	**Armstrong method is used for the generation of**
Option A:	direct FM
Option B:	SSB-SC
Option C:	indirect FM

Option D:	DSB-SC
Q7.	**What is the effect on the deviation δ of an FM signal when it is passed through a mixer?**
Option A:	Doubles
Option B:	Reduces
Option C:	Becomes half
Option D:	Remains unchanged
Q8.	**Indicate the false statement. The superheterodyne receiver replaced the TRF receiver because the latter suffered from**
Option A:	Gain variation over the frequency coverage range
Option B:	Insufficient gain and sensitivity
Option C:	Inadequate selectivity at high frequencies
Option D:	Instability
Q9.	**Which of the following is used to provide tracking between RF amplifier and local oscillator stages of receiver?**
Option A:	Variable tuning inductor
Option B:	Ganged tuning inductor
Option C:	Variable capacitor
Option D:	Variable preset
Q10.	**Types of analog pulse modulation systems are**
Option A:	Pulse amplitude modulation
Option B:	Pulse time modulation
Option C:	Frequency modulation
Option D:	Both a and b
Q11.	**Calculate the minimum sampling rate to avoid aliasing when a continuous time signal is given by x(t) = 5 cos 400πt**
Option A:	100 Hz
Option B:	200 Hz
Option C:	400 Hz
Option D:	250 Hz
Q12.	**Which multiplexing technique transmits digital signals?**
Option A:	Frequency Division Multiplexing
Option B:	Time Division Multiplexing
Option C:	Frequency Difference Multiplexing
Option D:	Wavelength Division Multiplexing
Q13.	**The sharing of link by two or more devices is called**
Option A:	Modulation
Option B:	Multiplexing

Option C:	Line Discipline
Option D:	Encoding
Q14.	**At a room temperature of 293K, calculate the thermal noise generated by two resistors of 20KΩ and 30 KΩ when the bandwidth is 10 KHz and the resistors are connected in series.**
Option A:	300.66 * 10^{-7}
Option B:	284.48 * 10^{-7}
Option C:	684.51 * 10^{-15}
Option D:	106.22 * 10^{-7}
Q15.	**When does over-modulation occur?**
Option A:	Modulating signal voltage < Carrier voltage
Option B:	Modulating signal voltage > Carrier voltage
Option C:	Modulating signal voltage = Carrier voltage
Option D:	Modulating signal voltage =0
Q16.	**The modulation index ,the maximum modulating frequency and the maximum deviation in narrowband FM is**
Option A:	1, 3 kHz, 15 kHz
Option B:	0.5, 3 kHz, 5 kHz
Option C:	1, 15 kHz, 75 kHz
Option D:	1, 3 kHz, 5 kHz
Q17.	**Advantage of ratio detector over Foster Seeley Discriminator is**
Option A:	less noise
Option B:	frequency limiting
Option C:	amplitude limiting
Option D:	phase limiting
Q18.	**A heterodyne frequency changer is called a**
Option A:	Modulator
Option B:	Mixer
Option C:	Demodulator
Option D:	Frequency translator
Q19.	**The Nyquist sampling interval, for the signal sin $c(700\,t)$ + sin $c(500\,t)$ is**
Option A:	1\350 sec
Option B:	1\700 sec
Option C:	π \350 sec
Option D:	π \175 sec
Q20.	**The communications system that uses digital pulse rather than analog signals to encode information**
Option A:	Digital carrier system
Option B:	Digital service system

Option C:	Digital broadband system
Option D:	Digital wideband system
Q21.	**To provide two or more voice circuits with the same carrier, it is necessary to use**
Option A:	ISB
Option B:	carrier insertion
Option C:	SSB with pilot carrier
Option D:	Balance Modulator
Q22.	**What is the required bandwidth according to the Carson's rule, when a 100 MHz carrier is modulated with a sinusoidal signal at 4 kHz, the maximum frequency deviation being 15 kHz?**
Option A:	30 kHz
Option B:	38 kHz
Option C:	8 kHz
Option D:	19 kHz
Q23.	**Maximum frequency deviation of the FM wave represented by the voltage-equation,** **v = 12 sin (6 x 10^8 t+ 5 sin 1250t), is**
Option A:	995 Hz
Option B:	1000 Hz
Option C:	900 Hz
Option D:	1250 Hz
Q24.	**When f_s is the signal frequency and f_i is the intermediate frequency, then image frequency f_{si} is given by**
Option A:	$f_{si} = f_s - 2f_i$
Option B:	$f_{si} = f_s + 2f_i$
Option C:	$f_{si} = f_s - f_i$
Option D:	$f_{si} = f_s + f_i$
Q25.	**A cable TV service uses a single coaxial cable with a bandwidth of 860 MHz to transmit multiple TV signals to subscribers. Each TV signal is 6 MHz wide. How many channels can be carried?**
Option A:	143
Option B:	123
Option C:	100
Option D:	150