BTECH-2(CSE) 3RD SEM DCOM(EC209)END SEM MCQ 20 MARKS - 8TH DEC,2020

1. TIME : 2:30 PM TO 3:15 PM (Including Submission Time)
2. 20 QUESTIONS & 20 MARKS
3. ENTER YOUR "CORRECT" ADMISSION NUMBER, DIVISION, NAME & MICROSOFT TEAMS EMAIL ID.
4. SUBMIT BEFORE TIME TO AVOID PROBLEMS.
5. Sign In/Submit Problems are student end problems.
6. Result will be declared later on.

* Required

Email address *

u19cs012@coed.svnit.ac.in

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U19CS012

DIVISION (Write A or B) *

A

EMAIL ID (ENTER MICROSOFT TEAMS Email) LIKE (U19CSXXX@svnitsuratg.onmicrosoft.com) *

U19CS012@svnitsuratg.onmicrosoft.com

FULL NAME OF STUDENT IN CAPITAL ONLY *

BHAGYA VINOD RANA

An oscillator for an AM transmitter has a 100μH coil and a 10nF capacitor. If a modulating frequency of 10 KHz modulates the oscillator, find the frequency range of the side bands. * 1 point

- 155 KHz to 166 KHz
- 184 KHz to 296 KHz
- 149 KHz to 169 KHz
- 238 KHz to 296 KHz

The expression for bandwidth BW of a PCM system, where v is the number of bits per sample and fm is the modulating frequency, is given by * 1 point

- BW ≥ vfm
- BW ≤ vfm
- BW ≥ 2 vfm
- BW ≥ 1/2 vfm

One of the following types of noise becomes of great importance at high frequencies. It is the * 1 point

- shot noise
- random noise
- impulse noise
- transit-time noise

The modulation system inherently most noise-resistant is * 1 point

- [ ] SSB, suppressed-carrier
- [ ] Frequency modulation
- [ ] pulse-position modulation
- [x] pulse-code modulation

The biggest disadvantage of PCM is * 1 point

- [ ] its inability to handle analog signals
- [ ] the high error rate which its quantizing noise introduces
- [ ] its incompatibility with TDM
- [x] the large bandwidths that are required for it

In the spectrum of a frequency-modulated wave * 1 point

- [ ] the carrier frequency disappears when the modulation index is large
- [x] the amplitude of any sideband depends on the modulation index
- [ ] the total number of sidebands depends on the modulation index
- [ ] the carrier frequency cannot disappear

The difference between phase and frequency modulation * 1 point

- [ ] is purely theoretical because they are the same in practice
- [ ] is too great to make the two system compatible
- [ ] lies in the poorer audio response of phase modulation
- [x] lies in the different definitions of the modulation index

Indicate the false statement regarding the advantages of SSB over double sideband, full-carrier AM_____ * 1 point

- [ ] More channel space is available.
- [x] Transmitter circuits must be more stable, giving better reception.
- [ ] The signal is more noise-resistant
- [ ] Much less power is required for the same signal strength

One of the following cannot be used to remove the unwanted sideband in SSB. This is the * 1 point

- [ ] filter system
- [ ] phase-shift method
- [ ] third method
- [x] balanced modulator

The term dispersion describes the process of * 1 point

- [x] separating light into its component frequencies
- [ ] reflecting light from a smooth surface
- [ ] the process by which light is absorbed by an uneven rough surface
- [ ] light scattering

The terms single mode and multimode are best describes as * 1 point

- [ ] the number of fibers placed into a fiber-optic cable
- [ ] the number of voice channels each fiber can support
- [x] the number of wavelengths each fiber can support
- [ ] the index number

In digital transmission, the modulation technique that requires minimum bandwidth is * 1 point

- [x] Delta modulation
- [ ] PCM
- [ ] DPCM
- [ ] PAM

In coherent detection of signals, * 1 point

- [ ] Local carrier is generated
- [ ] Carrier of frequency and phase as same as transmitted carrier is generated
- [ ] The carrier is in synchronization with modulated carrier
- [x] All of the above

A 4-PSK modulated signal has bit rate of 2000bps; the baud rate is ____ * 1 point

- [ ] 8000
- [ ] 4000
- [ ] 2000
- [x] 1000

ASK modulated signal has the bandwidth * 1 point

- [x] Same as the bandwidth of baseband signal
- [ ] Half the bandwidth of baseband signal
- [ ] Double the bandwidth of baseband signal
- [ ] None of the above

The total power in an Amplitude Modulated signal if the carrier of an AM transmitter is 800 W and it is modulated 50 percent. * 1 point

- [ ] 850 W
- [ ] 1000.8 KW
- [ ] 750 W
- [x] 900 W

The antenna current of the transmitter is 10A. Find the percentage of modulation when the antenna current increases to 10.4A. * 1 point

- [ ] 32.5%
- [ ] 28.5%
- [ ] 64.5%
- [x] 40.5%

Quadrature amplitude modulation (QAM) is a combination of _____. * 1 point

- [ ] ASK and FSK
- [x] ASK and PSK
- [ ] PSK and FSK
- [ ] ASK and ASK

Calculate the side band power in an SSBSC signal when there is 50% modulation and the carrier power is 50W. * 1 point

- [ ] 50 W
- [ ] 25 W
- [x] 6.25 W
- [ ] 12.5 W

Squelch circuit is * 1 point

- ○ Suppresses output audio
- ○ Works when there is insufficient desired input signal
- ○ Is used to suppress the unwanted channel noise when there is no reception by the receiver
- ◉ All of the above

Submission ID (skip this field) *

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Your answer

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