**ANANLOG COMMUNICATION LAB VIVA VOICE**

1.What is amplitude modulation?  
The process of amplitude modulation consists of varying the peak amplitude of a sinusoidal carrier wave in proportion to the instantaneous amplitude of the modulation signal.

Q2. What is modulation?  
Ans: Modulation may be defined as the process by which some parameters of a high frequency signal termed as carrier, is varie in accordance with the signal to be transmitted.

Q3. What are the different types of analog modulation?  
Ans: 1) Amplitude modulation 2) angle modulation.

Q4. What si the need for modulation?  
Ans: Consider, for example, picture signal of a T.V camera. It has frequency spectra of DC to 5.5MHz.such a wide band of frequency can’t be propagated through ionosphere. However, if this signal is modulated with a carrier in VHF and UHF range, the percentage bandwidth becomes very small and the signal become suitable for transmission through atmosphere.  
  
Q5. What are the objectives met by modulation?  
Ans: Length of antenna is shortened, signal loss is reduced, ease of radiation, adjustment of bandwidth, shifting signal frequency of the assigned value.  
  
  
Q6. What are the advantage of PAM and PWM?  
Ans: PWM system gives a greater signal to noise ratio as compared to PAM but requires a larger bandwidth to achieve this.

Q7. What is Pulse position modulation?  
Ans: Pulse position modulation (PPM) is the process in which the position of a standard pulse is varied as a function of the amplitude of the sampled signal.

Q8. What is the advantage of PPM over PWM and PAM?  
Ans: The phase deviation are usually small. The noise produces a smaller disturbing effect on the time position of the modulating pulse train and as a result, PPM waves have a better performance with respect to signal to noise ratio in comparison to PAM and PWM systems.

Q9. What are the applications of pulse position modulation?  
Ans: It is primarily useful for optical communication systems, where there tends to be little or no multipath interference. Narrowband RF (Radio frequency) channels with low power and long wavelength (i.e., low frequency) are affected primarily by flat fading, and PPM is better suited.

Q10. What is the purpose of using differential pulse position modulation?  
  
Ans: It is possible to limit the propagation of errors to adjacent symbols, so that an error in measuring the differential delay of one pulse will affect only two symbols, instead of effecting all successive measurements.  
Q11. What are the advantage of PPM?

Ans: One of the principle advantages of pulse position modulation is that it is an M-ary modulation technique that can be implemented non-coherently, such that the receiver does not need to use a phase-locked loop (PLL) to track the phase of the carrier. This makes it a suitable candidate for optical communications systems, where coherent phase modulation and detecting are difficult and extremely expensive. The only other common M-ary non-coherent modulation technique is M-ary frequency shift keying, which is the frequency domain dual to PPM.  
The other advantages of pulse position modulation are:  
• The amplitude is held constant thus less noise interference.  
• Signal and noise separation is very easy.  
• Due to constant pulse widths and amplitudes, transmission power for each pulse is same.  
  
Q12. What are the application of PPM?  
Ans: PPM is employed in narrowband RF channel systems, with the position of each pulse representing the angular position of an analogue control on the transmitter, or possible states of binary switch. The number of pulse per frame gives the number of controllable channels available. The advantage of using PPM for this type of application is that the electronics required to decode the signal are extremely simple, which leads to small, light-weight receiver/decoder units. (Model aircraft require parts that are as lightweight as possible).  
  
Q13. Explain the principle of PPM?  
Ans: The amplitude and the width of the pulse is kept constant in this system, while the position of each pulse, in relation to the position of a recurrent reference pulse is varied by each instantaneous sampled value of the modulating wave. This means that the transmitter must send synchronizing pulses to operate timing circuits in the receiver. The PPM has the advantage of requiring constant transmitter power output, but the disadvantage of depending on transmitter-receiver synchronization.

Q14. What is the puprpose of PPM?  
Ans: PPM may be used to transmit analog information, such as continuous speech or data.  
  
Q15. What are the analog analogies of PAM, PPM & PWM?  
Ans: PAM is similar to AM; PPM and PWM is similar to angle modulation.

Q16. What is Frequency modulation (FM)?  
Ans: Frequency modulation is the process of varying the frequency of a carrier wave in proportion to the instantaneous amplitude of the modulating signal without any variation in the amplitude of the carrier wave.

Q17. What is PWM or Pulse length modulation or pilse duration modulation?  
Ans: In PWM, the pulse amplitude is kept constant but the leading edge, trailing edge or both may be varied as a function of the amplitude of the sampled signal and care must be taken to ensure that the pulse don’t overlap in a TDM system.

Q18. What are the disadvantages of PWM?  
Ans: PWM, in general, requires a greater average power than PAM systems. Also, the PWM system requires a greater bandwidth than PAM.  
  
Q19. Explain the principle of PWM?

Ans: Pulse-width modulation (PWM) of a signal or power source involves the modulation of its duty cycle, to either convey information over a communication channel or control the amount of power sent to a load. PWM uses a square wave whose pulse width is modulated resulting in the variation of the average value of the waveform is directly dependent on the duty cycle D.  
  
Q20. Mention the applications of PWM.  
Ans: PWM can be used to reduce the total amount of power delivered to a load without losses normally incurred when a power source is limited by resistive means. This is because the average power delivered is proportional to the modulation duty cycle. With a sufficiently high modulation rate, passive electronic filters can be used to smooth the pulse train and recover an average analog waveform.

1.Sampling

2.FM

3.PAM

4.PWM

5.PPM

6.AM

7.Pre emphasis & de emphasis

8.Delta modulation

9.Fsk

10 Mixer

11.psk

12. pcm

1. Conduct an experiment of sampling frequency and sampling signal?.
2. Conduct a suitable experiment to generate an FM wave .find the modulation index β and bandwidth of operation B.Display the waveforms ?
3. Conduct a experiment to generate PAM signal and also design a circuit to demodulate to obtain the PAM plot various waveforms
4. Conduct a experiment for \_\_\_\_\_\_\_\_\_\_ system which requires a greater bandwidth than PAM.
5. Conduct a experiment for the process in which the position of a standard pulse is varied as a function of the amplitude of the sampled signal.
6. Conduct a experiment for the process of \_\_\_\_\_\_\_\_ modulation consists of varying the peak amplitude of a sinusoidal carrier wave in proportion to the instantaneous amplitude of the modulation signal?.
7. Conduct a experiment pre-emphasis and de-emphasis?
8. Conduct a experiment for \_\_\_\_\_\_ **modulation** which uses conversion technique in an analog-to-[digital](http://en.wikipedia.org/wiki/Digital_signal) and digital-to-[analog signal](http://en.wikipedia.org/wiki/Analog_signal) where conversion used for transmission of voice information.
9. Conduct an experiment FREQUENCY SHIFT Keying modulation & demodulation and also plot waveforms?
10. Conduct an experiment for characterizes of mixer?.
11. Conduct an experiment phase Shift Keying modulation & demodulation and also plot waveforms?
12. Conduct a experiment for pulse code modulation and demodulation?