

### EXPERIMENT NO:3 TO STUDY PHASE MODULATION & DEMODULATION

#### OBJECTIVE:

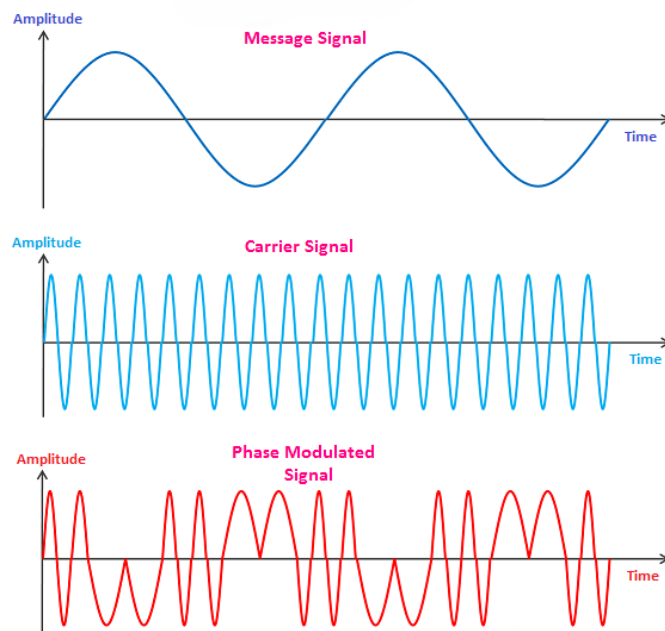
To understand the operation theory of phase modulation and demodulation and observe their respective waveforms.

#### THEORY:

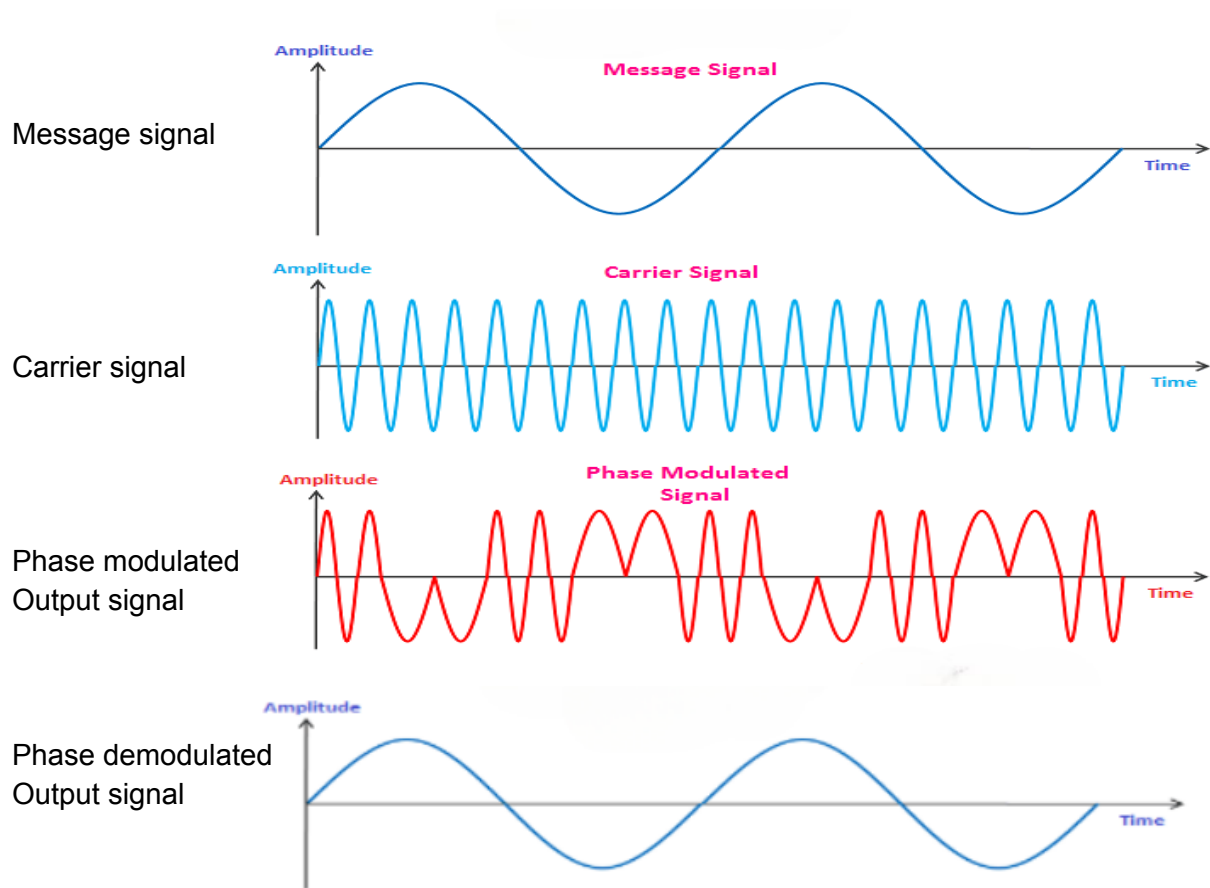
In the modulation , the amplitude of the carrier signal remains unchanged while phase change occurs and we have already mentioned that with the change in phase , the frequency of the signal also shows variation.

Thus ,it can be said that while phase modulating any signal , the phase as well as the frequency of the carrier signal shows variation

The figure below shows a sinusoidal message signal that is to be transmitted from an end to another , a carrier signal which is to be phase modulated an the last image in the figure represents the phase modulated signal



### OBSERVED WAVEFORM:



### RESULT:

The modulation characteristics of the phase modulator are observed and plotted .

### CONCLUSION:

Thus the study of phase modulation has been done .

**EXPERIMENT NO: 4**  
**TO STUDY AMPLITUDE SHIFT KEYING (ASK) MODULATION AND DEMODULATION**

**OBJECTIVE:**

To Study operation theory of ASK modulation and demodulation also understand the ASK modulated & demodulated waveforms

**THEORY:**

Amplitude shift key is a type of amplitude modulation which represents the binary data in the form of variations in the amplitude of signal. Any modulated signal has a high frequency carrier. The binary signal when ASK modulated gives a zero value for low point while it gives the carrier output for high input. Figure represents ASK modulated waveform along with its input.

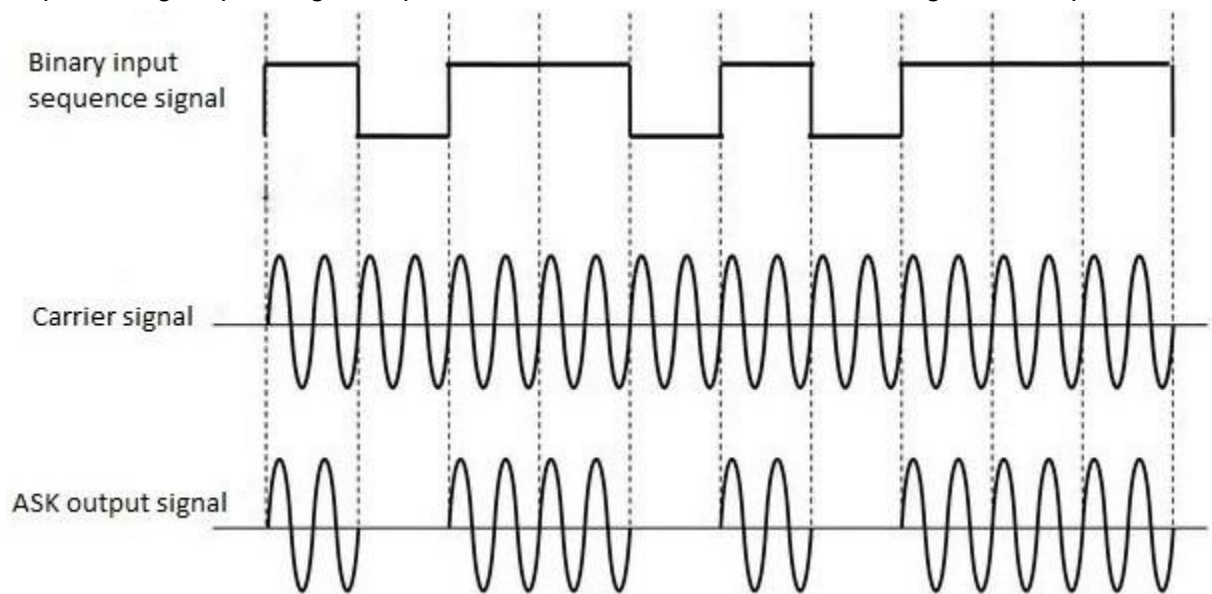
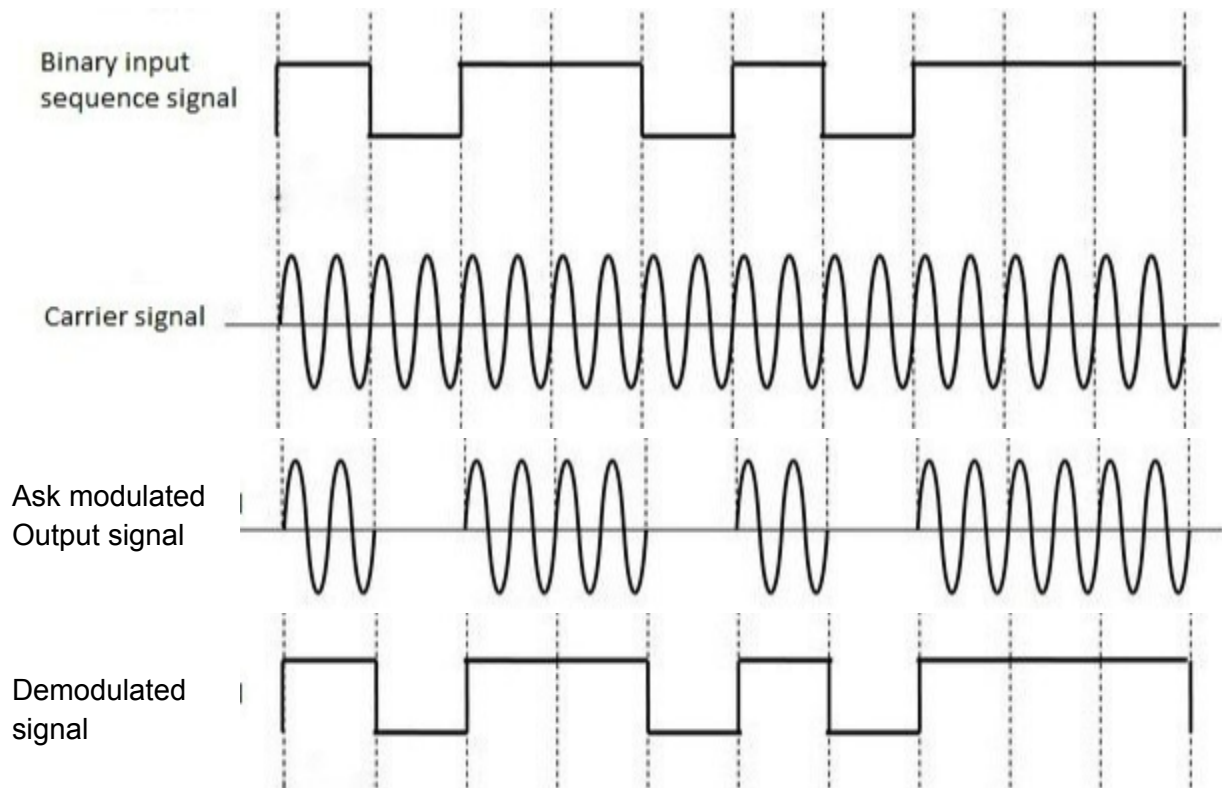


Fig: ASK modulation output for input & carrier signal

**OBSERVED WAVEFORM:****RESULT:**

We connected the output of the modulator to the input of the demodulator circuit and observed the output . There was some distortion in the output obtained from the demodulated signal due to noise .

**CONCLUSION:**

Thus,we studied operation theory of ASK modulation and demodulation also understood the ASK modulated & demodulated waveforms

## **EXPERIMENT NO: 5**

### **TO STUDY FREQUENCY SHIFT KEYING (FSK) MODULATION AND DEMODULATION**

#### **OBJECTIVE:**

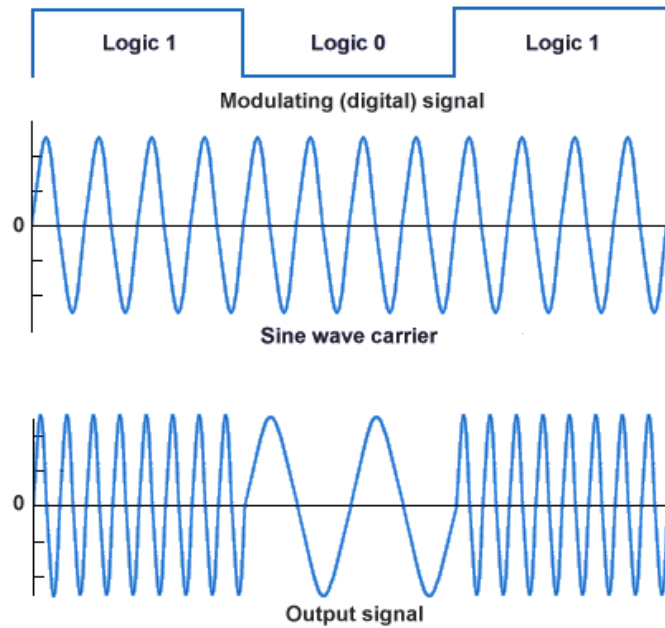
To Study operation theory of FSK modulation and demodulation , also understand the FSK modulated & demodulated waveforms

#### **THEORY:**

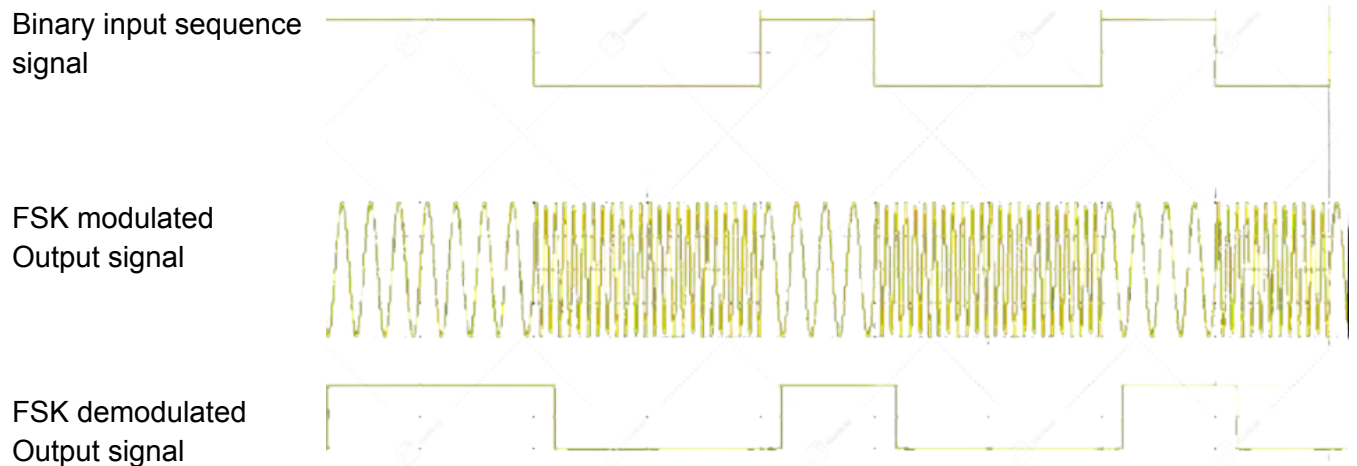
Frequency-shift keying (FSK) is a method of transmitting digital signals using discrete signals. The two binary states -- logic 0 (low) and 1 (high) in a binary frequency-shift key mechanism -- are each represented by an analog waveform.

Logic 0 is represented by a wave at a specific frequency, and logic 1 is represented by a wave at a different frequency. The distance between logic 0 and logic 1 is known as the deviation or shift point. A modem converts the binary data from a computer to FSK for transmission over telephone lines, cables, optical fiber or wireless media. The modem also converts incoming FSK signals to digital low and high states, which the computer can understand from a binary standpoint.

Figure below shows the FSK waveforms along with inputs



### OBSERVED WAVEFORM:



### RESULT:

We connected the output of the modulator to the input of the demodulator circuit and observed the output. There was some distortion in the output obtained from the demodulated signal due to noise.

### CONCLUSION:

Thus, we studied operation theory of FSK modulation and demodulation also understood the ASK modulated & demodulated waveforms.

