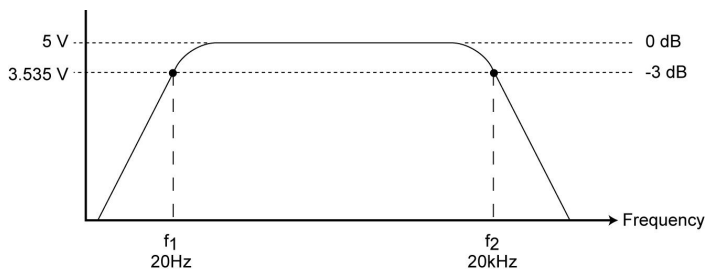


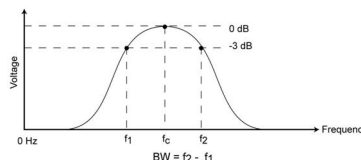
Frequency Domain View of Electronic Signals: Practical Application of the Fourier Theory

Objectives: Bandwidth

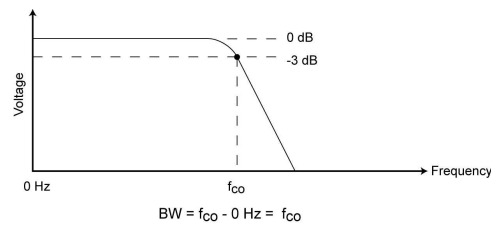
1. Identify the plot that defines the spectrum of a binary signal.
 2. Define the term bandwidth and state a way to calculate it for a rectangular pulse signal.
1. The range of frequencies over which a circuit operates or which a transmission medium passes is the
 - a. Bandwidth
 - b. Cut-off frequency
 - c. Filter
 - d. Frequency content



2. What is the bandwidth of the circuit shown here?
 - a. -3db
 - b. 3.535 volts
 - c. 19,980 Hz
 - d. 20,020 Hz
3. In a _____ the bandwidth is just the value of the upper cut-off frequency f_{co} .
 - a. Band pass filter
 - b. Low pass filter
4. In a _____, the bandwidth is the difference between the upper (f_2) and lower (f_1) cut-off frequencies.
 - a. Band pass filter
 - b. Low pass filter



5. This figure represents a _____
 - a. Band pass filter
 - b. Low pass filter



6. This figure represents a _____.
 - a. Band pass filter
 - b. Low pass filter
7. If the _____ and the _____ of the input signal are compatible, the circuit will pass all of the components of the signal including most of the harmonics it contains.
 - a. Bandwidth, frequency content
 - b. Bandwidth, signal
 - c. Frequency content, harmonics
 - d. Harmonics, signal
8. If the circuit has a _____, it will act as a _____. Some of the parts of the signal, typically the upper level harmonics, will not be passed. As a result, the output signal will be a distorted version of the input.
 - a. Limited bandwidth, amplifier
 - b. Limited bandwidth, filter
 - c. Wide bandwidth, cut-off amplifier
 - d. Wide bandwidth, filter
9. The formula for finding bandwidth is
 - a. $BW = 0.35 + t_r$
 - b. $BW = 0.35 - t_r$
 - c. $BW = 0.35 / t_r$
 - d. $BW = 0.35 t_r$
10. If a low pass filter with a square wave input produces an output pulse with a rise time for 750 nS, the bandwidth is:
 - a. 4.67 kHz
 - b. 46.70 kHz
 - c. 466.67 kHz
 - d. 467.67 Hz