

TSN2201 COMPUTER NETWORK**TUTORIAL 3 (Tri 1, 2017/2018)**

1. The period of a signal is 50 ms. What is its frequency in kilohertz?
2. Draw the time-domain plot of a sine wave with maximum amplitude of 15 volts, a frequency of 5, and a phase of 270 degrees.
3. What is the bandwidth of a signal that can be decomposed into four sine waves with frequencies at 0,20,50, and 200 Hz? All maximum amplitudes are the same. Draw the frequency spectrum.
4. Show the frequency domain of the following signal: $s(t)=8+3\sin 100\pi t+ 5 \sin 200\pi t$.
5. A signal travels from point A to point B. At point A the signal power is 100W. At point B the power is 80W. What is the attenuation in decibel?
6. Suppose a signal travels through a transmission medium and its power is reduced to one-half. What is the attenuation in decibel?
7. A signal travels through an amplifier, and its power is increased 10 times. What is the attenuation in decibel?
8. A line has a signal-to-noise ratio of 1000 and a bandwidth of 4000 KHz. What is the maximum data rate supported by this line?
9. A file contains 16 million bytes. How long does it take to download this file using a 56-Kbps channel? 4-Mbps channel?