**IT - 305 Data Communication** **Assignment #1**
**September 17, 2019**

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# 1 Assignment

1. What does the amplitude of a signal measure? What does the frequency of a signal measure? What does the phase of a signal measure?
2. What is the bandwidth of a signal that ranges from 1 MHz to 4 MHz.?
3. Consider a noiseless channel with a bandwidth of 4 KHz. If we want to transmit 24 Kbps on this channel. What is the minimum number of signal levels required?
4. 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?
5. What does the Nyquist theorem have to do with communications?
6. What does the Shannon capacity have to do with communications?
7. What is the purpose of cladding in an optical fiber?
8. Name the advantages of optical fiber over twisted-pair and coaxial cable.
9. How does sky propagation differ from line-of-sight propagation?
10. What is the difference between omnidirectional waves and unidirectional waves?

**Due on or before 23/09/2019**