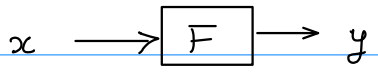
AV314 - Assignment 1

1) Find out who regulates the spectrum allocation in India?
2) What is the range of frequencies which is allocated to 4G cellular services in India?
3) Find out the range of frequencies that will be used by GSAT-11.

4) Suppose there is an audio signal $m(t)$ that is transmitted over a communication link to a destination. At the destination we have an approximation $\hat{m}(t)$ to $m(t)$. In class, we had seen that the "goodness of approximation" of $\hat{m}(t)$ to $m(t)$ is measured by a function $e(\hat{m}(t), m(t))$. Suggest some possible functions for $e(\cdot,\cdot)$. Why do you think these are appropriate for measuring the goodness of approximation.

5) Consider a system (F) which operates on scalar real numbers as shown below



or $y = F(x)$, $x \in \mathbb{R}$, $y \in \mathbb{R}$.
where $\mathbb{R}$ is the set of real

We do not know what the function / system F is. But we want to model F using an affine function F_{aff}. (That means instead of mapping x to y using F, we think of the mapping as $y = mx + c$. Note that the mapping is affine.) Discuss how you will come up with this affine function F_{aff}. If you come up with a candidate F_{aff}, then how will you evaluate whether F_{aff} is a good model/approximation to F? Can you write down a procedure/algorithm for coming up with F_{aff}?