Assignment 02

- In the figure below, if the room temperature transmission line has a loss of 0.4 dB, and there are 2 stages of amplification with noise temperatures / gains of 45 K / 13 dB and 140 K / 13 dB, and assume the rest of the receiver has a noise temperature of 800 K. Determine the overall receiver noise temperature.
- 2. For an integration time of 120 secs, a bandwidth of 20 MHz, and a $T_{sys}(=T_{tot})$ of 40 K, the uncertainty is ~ 0.0006 Kelvin. So a 100 mJy source can be detected with a signal-to-noise ratio of _____?
- - 3.1.For ex., if a receiver system provides a baseband signal of 20 MHz, the signal must be sampled ______.
- 4. For an E-W array, like Westerbork, all (*u*, *v*)-tracks are circular (or oval-like) entered at the origin True/False?
 - 4.1. In a similar fashion, for this E-W array, what is the shape of (u, v)-tracks for a source at declination = 0 deg and at declination = 90 deg.
 - 4.2. If a baseline has some N-S component, would the circles (or the ovals) be entered on the origin? Give an explanation.

