# Gedächtnisprotokoll RET WiSe 2022/2023

## PV

1. Max theoretical efficency of wind turbine (Betz)
   - 47,3 %
   - 53,2 %
   - 59,3 %
2. Name wind measurement device
   - anemometer
3. Name change of area from upstream (8 m/s) to downstream (6 m/s)
   - Formular: Constant voluminal stream
     ➔ 133 %
4. Name of Weibull distribution with shape factor k = 2
   - Raighleigh
5. Formular for average windspeed on a site
6. Lacplace transform of equation of motion
7. How to double $\omega e$ with $\omega m$ = const.
8. Controller design (same as in other old exam)
9. Linearization for electric power in the airgap
10. Why is equation only linearized with regards to small perturbations wo we and Te without considering a small perturbation in the number of poles p
11. Mark stable region in CT vs. Lambda diagram

## Solar

1. Describe the absorption and scattering on the irradiance on earth
2. How to measure diffuse irradiation, What devices are needed and explain it in 2 or three sentences
3. If two PV systems have different R, where R2 > R1, do they generate the same power? Which Current is lower?
4. Given data sheet of PV modules. How many modules needed in series and in parallel for specific voltage output and current output. Calculate area and costs
5. Draw a schematics with two cells in series with an load. Explain the impact of shunt resistance on IU-curve. Draw in current flow if one cell is shunted. Name 2 reasons why a converter is between load and PV cell
6. System give with one PV module, a buck converter and a load with 6 Ohm. Calculate D. Calculate the resistance which the Module sees at MPPT.