Problem 1: [100 points]

Find the amount of wind energy at 15 °C and 1 atm pressure that passes through 1 m² of cross-sectional area for the following wind regimes:

(Take the air density at 15 °C and 1 atm pressure as 1.225 kg/m³).

(i)  [50 points] 100 hours at 6 m/s

(ii) [50 points] 50 hours at 3 m/s plus 50 hours at 9 m/s (i.e. an average wind speed of 6 m/s)