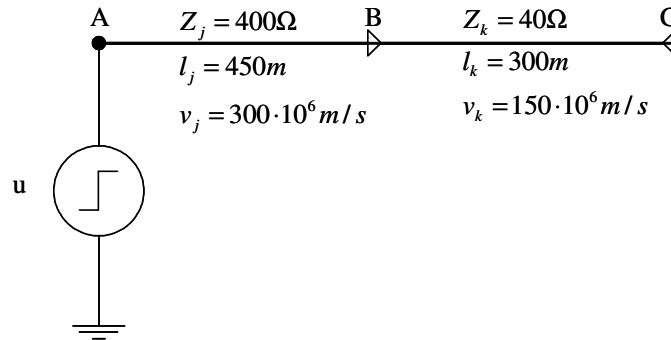


### Exercise 3

1. A step wave of amplitude  $u$  is applied to the open wire line in the figure. Study voltage as a function of time at points A, B and C.



2. A current transformer is linked to a 20 kV open-wire line. The primary coil inductance is  $100\mu H$ . Wave impedance of the line is  $500\Omega$ . A step wave of amplitude 110 kV arrives to the current transformer. Show using equations and approximate drawings both of the transformer's 20 kV terminals against ground and also the voltage between the terminals.
3. An overhead line receives a square impulse of amplitude 100 kV and length 2 km at point A. Point A is connected to a parallel spark gap with a  $0.01\mu F$  capacitor. The inception voltage of the gap is 50 kV. Draw the reflecting waveform at point A and the define the waveform parameters.

