## E18 a)


b)

$$
\begin{align*}
& u=U_{1} \cdot \frac{\frac{R_{1} h_{11}}{R_{1}+h_{11}}}{\frac{1}{j \omega C_{1}}+\frac{R_{1} h_{11}}{R_{1}+h_{11}}} \\
& J_{b}=\frac{U}{h_{11}} \ldots(2) \\
& U_{2}=-h_{2}, J_{6} \cdot R_{3} \ldots \tag{3}
\end{align*}
$$

$(1),(2) \&(3) \rightarrow$

$$
\begin{aligned}
& u_{2}=-\frac{h_{21}}{h_{11}} \cdot U_{1} \cdot \frac{\frac{R_{1} h_{11}}{R_{1}+h_{11}}}{\frac{1}{j \omega C_{1}}+\frac{R_{1} h_{11}}{R_{1}+h_{11}}} \cdot R_{3} \\
& \frac{v_{2}}{\omega_{1}}=-\underbrace{\frac{h_{2}, R_{3}}{h_{11}}}_{150} \cdot \frac{j w c_{1} \cdot \frac{R_{1} h_{11}}{R_{1}+h_{11}}}{1+j w\left(C_{1} \cdot \frac{R_{1} h_{11}}{R_{1}+h_{11}}\right.} \rightarrow 79,7 \cdot 10^{-6} \\
& \frac{\boldsymbol{U}_{2}}{\boldsymbol{v}_{1}}=-150 \frac{j \frac{w}{12545}}{1+j \frac{w}{12545}} \quad 150 \cdots \frac{\text { BODEDARGRAM }}{1} \\
& \text { c) } \omega_{u}=2 \pi f_{u} \Rightarrow f_{u}=1997 \mathrm{~Hz}
\end{aligned}
$$

