

M. Hasyem Abdallah P.
110119095

3. $Z_{in} = R_s = 50 \Omega$

$Z_{out} = (100 - j25) \Omega$

$f = 500 \text{ MHz}$

Signal: HPF

a. $Q_s = \frac{X_s}{R_s} = \frac{25}{100} = \frac{1}{4}$

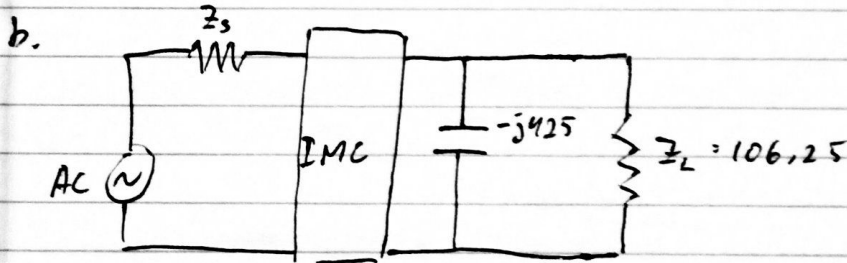
$R_p = R_s (Q^2 + 1)$

$R_p = 100 (0,25^2 + 1)$

$R_p = 106,25$

$X_p = \frac{R_p}{Q} = \frac{106,25}{0,25} = 425$

Model paralel = $(106,25 - j425) \Omega$



$Q = \sqrt{\frac{106,25}{50} - 1} = 1,06$

$Q_c = \frac{X_c}{R_c} \rightarrow X_c = Q \cdot Z_s$

$X_c = 1,06 \cdot 50$

$X_c = 53 \Omega = -j53$

$Q_p = \frac{R_p}{X_p} \rightarrow X_p = \frac{R_p}{Q_p}$

$X_p = \frac{106,25}{1,06}$

$X_p = 100 \Omega = j100$

M. Hasyim Abdullah
110119695

