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P3 ELIN A.

1. Diketahui

$V_s = 380V$ } dari secondary.
$f = 50\ Hz$ }
$R_{load} = 20\Omega$

a. Output Voltage Ripple.

$V_{s(L-N)} = \frac{380}{\sqrt{3}}$

$= 219.393\ V$

$V_{m(L-N)} = 219,393 \times \sqrt{2}$

$= 310,268\ V$

$V_{o(dc)} = \frac{(3\sqrt{3} \times V_m)}{2\pi}$

$= \frac{(3\sqrt{3} \times 310,268)}{2 \cdot 3,14}$

$= 256.719$

$V_{o(rms)} = 0,841 \times V_m$

$= 0,841 \times 310,268$

$= 260,935$

$V_{o(ac)} = \sqrt{(V_{o(rms)})^2 - (V_{o(dc)})^2}$

$= \sqrt{(260,935)^2 - (256,719)^2}$

$= 46,776\ V$

$\Delta V_o = \frac{V_{o(ac)}}{2\sqrt{2}}$

$= \frac{46,776}{2\sqrt{2}}$

$= 33,033$

b. $V_{s(L-N)} = 219,393.V$
$V_{m\,L-N} = 310,268\ V$
$V_{dc} = 256,719$
$V_{rms} = 260,936.$

$FF = \frac{V_{(rms)}}{V_{(dc)}}$

$= \frac{260,936}{256,719}$

$= 1,016\ V.$

c. $R_f = FF^2 (-1)$

$= 1,016^2 (-1)$

$= 0\sqrt{0,098}$

$= 0,219.$

d. $\eta = \frac{P_{o(dc)}}{P_{o(ac)}}$

$= \frac{(V_{o(dc)} \times I_{o(dc)})}{(V_{o(ac)} \times I_{o(ac)})}$

$= \frac{(319.91 \times 15,72)}{(319.58 \times 15,92)} \times 100\%$

$= 0,960892\ \%$

E. $V_{(LN)} = 219,313V$

$P = 3 \times \frac{V_{(LN)}^2}{R}$

$= 3 \times \frac{220^2}{20}$

$= 7,29 \text{ kW.}$

F. Karena tidak adanya induktansi dan kapasitansi maka.
besar Reactive powernya = 0.

G. $Z = \sqrt{R^2 + (XL - XC)^2}$

$= \sqrt{R^2} = 20 \Omega$

$S = 3 \times \frac{V_{(LN)}^2}{20}$

$= 3 \times \frac{219^2}{20}$

$= \ldots$ 7,2 kW

H. $P_f = \frac{P_{O(ac)}}{S}$

$= \frac{7,29 \text{ kW}}{7,2 \text{ kW.}}$

$= 1,005 \text{ kW.}$