

95b].

$$\alpha = 45^\circ$$

$$V_i^\circ = 220V.$$

$$V_{oav} = \frac{2\sqrt{2} V_i^\circ \cos \alpha}{\pi}$$

$$= 140 \cdot 0.56 V.$$

$$I_{oav} = \frac{V_{oav}}{R} = \frac{140 \cdot 0.56}{\sqrt{R^2 + (\omega L)^2}}$$

AS it is a full wave bridge converter  
the R.M.S value of output voltage is  
same as the i/p AC voltage

$$V_{ORMS} = V_i^\circ = 230V.$$

96a.  $V_i = 230$ ,  $R = 10$ ,  $\alpha = 0.4$

$$\text{Avg o/p voltage } (V_o) = D \times V_i^\circ = 92V$$

$$\text{Rms o/p voltage } (V_o) = \sqrt{D} \times V_i^\circ = 145.464V.$$

$$P_o = \frac{V_o^2}{R} = \frac{145.46^2}{10} = 2115 W.$$

$$P_i = V_i^\circ \times \frac{V_o}{R} = 230 \times \frac{92}{10} = 2116.$$

$$\% \eta = \frac{P_o}{P_i} = 99.9\%.$$