Solución.
a)

$$r_c = \frac{\frac{\pi \cdot \phi^2}{4} \cdot PMI}{\frac{\pi \cdot \phi^2}{4} \cdot PMS} = \frac{PMI}{PMS} = 9$$

$$PMI - PMS = c = 7,6mm$$

De aquí deducimos:

$$\frac{PMS + 7,6}{PMS} = 9 \Longrightarrow PMS = \frac{7,6}{8} = 0,95cm$$

$$PMI = PMS + c = 0,95 + 7,6 = 8,55cm$$

b)

$$V_u = \frac{\pi \cdot \phi^2}{4} \cdot c = \frac{\pi \cdot 7,9^2}{4} \cdot 7,6 = 372,33cm^2$$

$$Cilindrada = V_u \cdot n = 372,33cm^3 \cdot 2 = 744,67cm^3$$

$$V_{comb} = \frac{\pi \cdot \phi^2}{4} \cdot PMS = \frac{\pi \cdot 7,9^2}{4} \cdot 0,95 = 372,346,54cm^2$$

c)
$P_{máx}$=32 Kw, para n=5500 r.p.m., es decir:

$$\omega = \frac{2 \cdot \pi \cdot n}{60} = \frac{2 \cdot \pi \cdot 5250r.p.m.}{60} = 549,5rad/s$$

$$M = \frac{P_{max}}{\omega} = \frac{32000w}{549,5rad/s} = 58,23Nm$$

$$\omega = \frac{2 \cdot \pi \cdot n}{60} = \frac{2 \cdot \pi \cdot 3000r.p.m.}{60} = 314rad/s$$

$$P = M_{max} \cdot \omega = 61,7Nm \cdot 314rad/s = 19373,8w$$

d)
Si η_{trans}=90%, entonces:

$$P_{ruedas} = \eta \cdot P_{motor} = 0,90 \cdot 32000w = 28800w$$