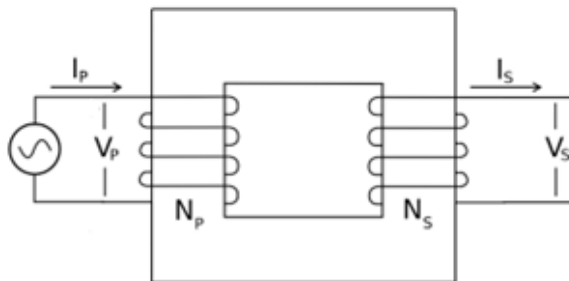


NAME:

NEPTUN:

## ELECTRICS AND ELECTRONICS II.

1. CALCULATE THE MISSING QUANTITIES! CALCULATION REQUIRED!



$$V_p = 240V$$

$$N_p = 40$$

$$N_s = 20$$

$$V_s = ?$$

$$k = ?$$

2. A. EXPLAIN WHAT PARAMETERS YOU SEE IN THE PICTURE.

3 PHASE AC MOTOR IEC 60034				
TYP		SN		
1 11 kW	4 1425 1/min	5 Δ 400 V	6 24 A	7 50 Hz
2 PF 0,79	IP 54	Ins. Cls. F	Kg MOTOR	
3 I <sub>A</sub> / I <sub>N</sub>		8 M <sub>A</sub> / M <sub>N</sub>		
Learnchannel-TV.com				

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.

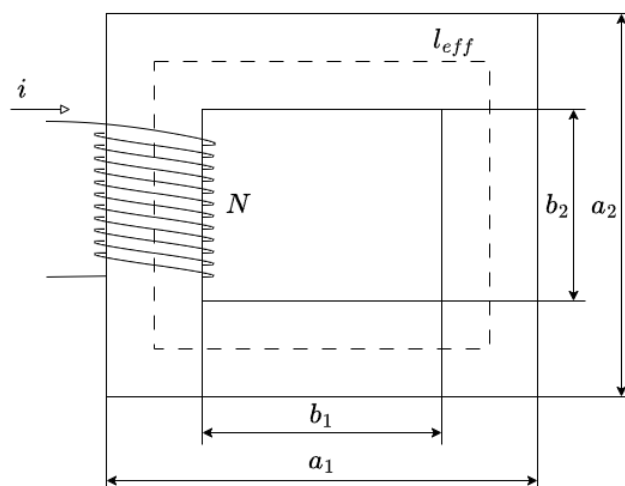
B. CALCULATE THE TORQUE OF THE MOTOR (USE THE  $\cos \phi$  VALUE OF 0.79). CALCULATION REQUIRED!

3. A.WHY DO WE USE INVERTERS (FREQUENCY CONVERTERS) TO DRIVE ELECTRIC MACHINES?  
EXPLAIN IN SOME SENTENCES!

4. CALCULATE THE VALUE OF THE MAGNETIC FIELD STRENGTH! CALCULATION REQUIRED!  
PROPERTIES OF THE MAGNETIC CIRCUIT:

- $B = 1,2T$
- $\mu_r = 800$
- $\mu_0 = 4\pi 10^{-7}$

5. CALCULATE THE MAGNETIC FIELD STRENGTH IN THE IRON CORE SHOWN ON THE FIGURE!



$$\begin{aligned} i &= 2 \text{ A} \\ N &= 50 \\ a_1 &= a_2 = 0.10 \text{ m} \\ b_1 &= b_2 = 0.05 \text{ m} \\ l_{eff} &= ? \\ H &= ? \end{aligned}$$