APPARATUS NUMBER

Coil 1: air core

	R'/Ω	V_A/V	ΔV_A/V	V/V	ΔV/V	$V_{R'}$/V	ΔV_R/V	V_O/V
With one polarity								
With reverse polarity								
Average								

	Z/Ω	R/Ω	X/Ω	L/H
Coil 1 air core				

	$u_S(Z)$	$u_S(R)$	$u_r(Z)$	$u_r(R)$	$u_C(Z)$	$u_C(R)$	$u_C(X)$	$u_C(L)$
Coil 1 air core								

R_1		±	Ω
L_1		±	mH

Coil 2: air core

	R'/Ω	V_A/V	ΔV_A/V	V/V	ΔV/V	$V_{R'}$/V	$\Delta V_{R'}$/V	V_O/V
With one polarity								
With reverse polarity								
Average								

	Z/Ω	R/Ω	X/Ω	L/H
Coil 2 air core				

	$u_S(Z)$	$u_S(R)$	$u_r(Z)$	$u_r(R)$	$u_C(Z)$	$u_C(R)$	$u_C(X)$	$u_C(L)$
Coil 2 air core								

R_2		±	Ω
L_2		±	mH

Coil 1: Al core

	R'/Ω	V_A/V	ΔV_A/V	V/V	ΔV/V	V_R/V	ΔV_R/V	V_O/V
With one polarity								
With reverse polarity								
Average								

	Z^*/Ω	R^*/Ω	X^*/Ω	L^*/H
Coil 1 Al core				

	$u_S(Z^*)$	$u_S(R^*)$	$u_r(Z^*)$	$u_r(R^*)$	$u_C(Z^*)$	$u_C(R^*)$	$u_C(X^*)$	$u_C(L^*)$
Coil 1 Al core								

R^*_1		±	Ω
L^*_1		±	mH

Coil 2: Al core

	R'/Ω	V_A/V	ΔV_A/V	V/V	ΔV/V	$V_{R'}$/V	$\Delta V_{R'}$/V	V_O/V
With one polarity								
With reverse polarity								
Average								

	Z^*/Ω	R^*/Ω	X^*/Ω	L^*/H
Coil 2 Al core				

	$u_S(Z^*)$	$u_S(R^*)$	$u_r(Z^*)$	$u_r(R^*)$	$u_C(Z^*)$	$u_C(R^*)$	$u_C(X^*)$	$u_C(L^*)$
Coil 2 Al core								

R^*_2		±	Ω
L^*_2		±	mH

PART 2

M_{12} = mH

M_{21} = mH

M_{av} = mH

k =

M^*_{12} = mH

M^*_{21} = mH

M^*_{av} = mH

k* =

R

R′ = 300 Ω

	Obs No	R_L/Ω	V_A/V	V/V	$V_{R'}$/V	V_O/V
With one polarity	1					
With reverse polarity						
Average						
With one polarity	2					
With reverse polarity						
Average						

	Obs No	R_L/Ω	V_A/V	V/V	$V_{R'}$/V	V_A/V
With one polarity						
With reverse polarity						
Average						
With one polarity						
With reverse polarity						
Average						

h) Linearised equation for graph

M and Xs from graph

M = mH

Xs = Ω

PART 3

K and l) Calculated data

	R_L/Ω	Z_{PE}	R_{PE}	X_{PE}	R_R	X_R

Inference from graph of X_{PE} vs X_R expressed in the form of an equation

Value of R_L at which R_R is maximum

_____Ω

PART 4

For coil 1 L_{core}/R_{core} =

For coil 2 L_{core}/R_{core} =

Δ

Formula giving ΔP

ΔP = mW