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Name :- Muhammad Ali
ID :- 6964
Assignment :- Sessional Assign.
Teacher :- Waleed Jan
Module :- 6th
Course :- Instrumentation
& Measurements.

x ~~~~~ x ~~~~~ x

QNO1 :-

Solution :-

Given data :-

2 current coils = $R_1 = 0.7$.

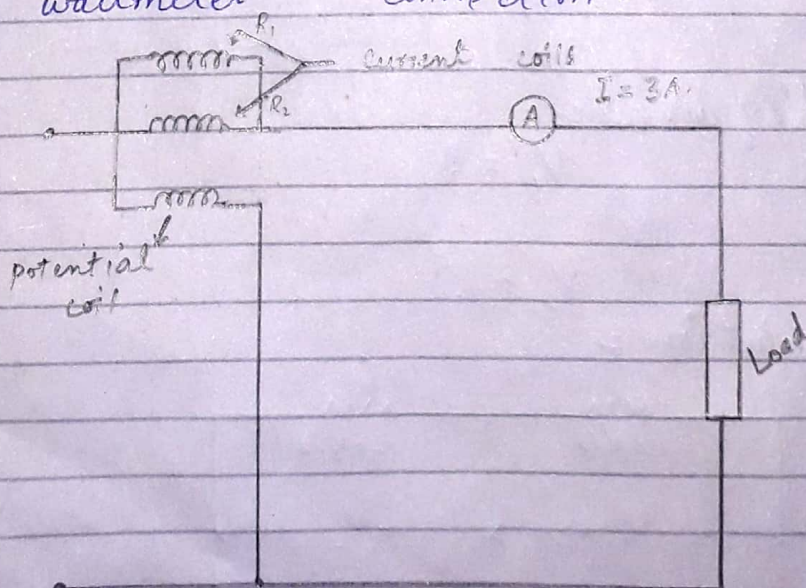
connected in parallel = $R_2 = 0.7$

wattmeter $P = 100\text{ W}$

Current $I = 3\text{ A}$.

Required :-

- i) Power loss in wattmeter
- ii) True load power
- iii) Percentage error due to wattmeter connection.



P.T.O

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Effective Resistance of C. coils.

$$R_c = \frac{R_1 R_2}{R_1 + R_2} = \frac{0.7 * 0.7}{0.7 + 0.7} = 0.35 \Omega$$

i) - Power loss in wattmeter =
 $I^2 R_c = 3^2 (0.35)$
 $= (3.15 \text{ W})$

ii) True load power =
 $100 - 3.15 = (96.85 \text{ W})$

iii) - % age error = $\frac{100 - 96.85}{96.85} \times 100$
 $= (3.25 \%)$



QNO2:-

Given data:-

voltage $V = 0-500 \text{ V}$.

$R_1 = 30 \text{ k}\Omega$

$R_2 = 20 \text{ k}\Omega$

$V_T = 700 \text{ V}$

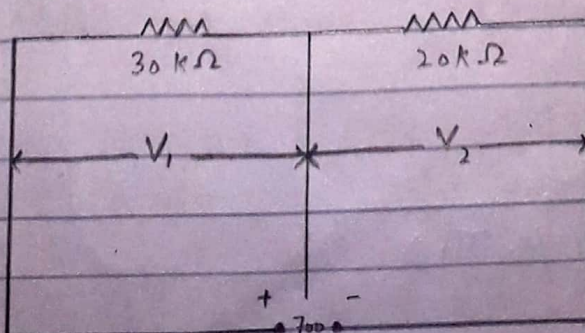
Required:-

$V_1 = ?$

&

$V_2 = ?$

Solution :-



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voltage divider rule The
voltage of two voltmeters are

$$V_1 = \frac{30k\Omega}{30k\Omega + 20k\Omega} \times 700$$

$$V_1 = (420V)$$

Now:-

$$V_2 = \frac{20k\Omega}{30k\Omega + 20k\Omega} \times 700$$

$$V_2 = (280V)$$

