

INSTRUCTION:

This section consists of **FOUR (4)** structured/short answer questions. Answer **ALL** questions.

ARAHAN:

*Bahagian ini mengandungi **EMPAT (4)** soalan berstruktur/soalan pendek. Jawab **SEMUA** soalan.*

QUESTION 1**SOALAN 1**

CLO1

- (a) Name **FOUR (4)** electrical quantities.
*Namakan **EMPAT (4)** kuantiti elektrik.*

[4 marks]

[4 markah]

CLO1

- (b) A series circuit is shown as in Figure 1 (b) below. Approximate:
Litar siri seperti ditunjukkan pada Rajah 1(b) di bawah. Anggarkan:

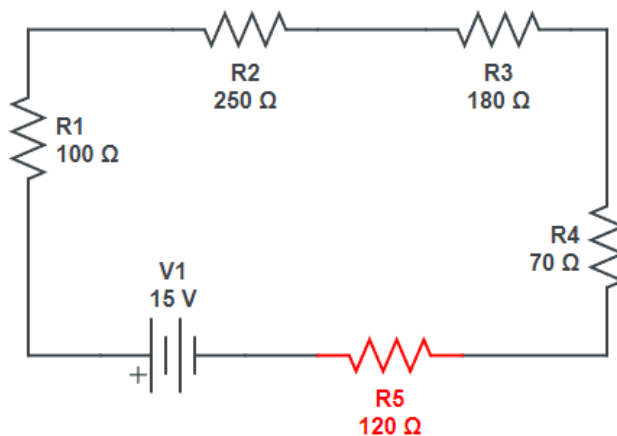


Figure 1(b) / Rajah 1(b)

- i. Total Resistance, R_T .
Jumlah Rintangan, R_T .

[2 marks]

[2 markah]

- ii. Total Current, I_T .
Jumlah Arus, I_T .

[3 marks]

[3 markah]

- iii. Voltage on R_5 , V_{R5} .
Voltan pada R_5 , V_{R5} .

[3 marks]

[3 markah]

CLO1

- (c) Calculate I_1 , I_2 and I_3 for the circuit in Figure 1(c) below with the following parameter by using Kirchoff Law:

Kira I_1 , I_2 dan I_3 bagi litar dalam Rajah 1(c) di bawah dengan parameter yang berikut dengan menggunakan Hukum Kirchoff:

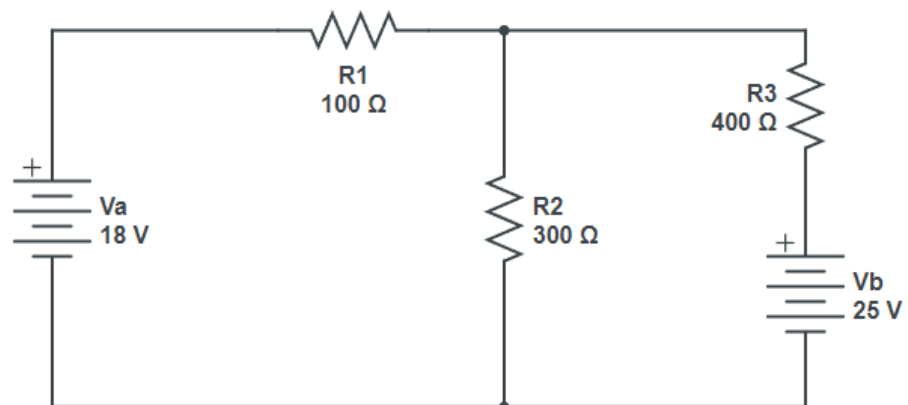


Figure 1(c) / Rajah 1(c)

[13 marks]

[13 markah]

QUESTION 2

SOALAN 2

CLO1

- (a) State the name and unit for the component in Figure 2 (a) below.

Nyatakan nama dan unit bagi komponen dalam Rajah 2(a) dibawah .

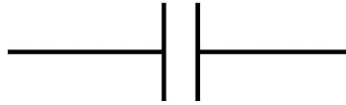


Figure 2(a) / Rajah 2(a)

[3 marks]

[3 markah]

CLO1

- (b) Inductor and Capacitor are passive elements that are useful in electronic circuit.

Peraruh dan Pemuat, adalah elemen pasif yang berguna dalam litar elektronik.

- i. Approximate the Total Capacitance (C_{Total}) in Figure 2 (b (i)).

Anggarkan Jumlah Kemuatan (C_{Total}) dalam Rajah 2 (b (i)).

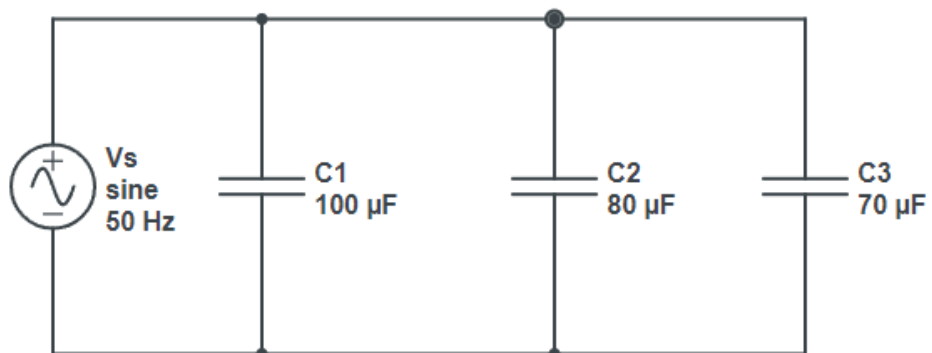


Figure 2 (b (i)) / Rajah 2 (b (i))

[5 marks]

[5 markah]

- ii. Approximate the Total Inductance (L_{Total}) in Figure 2 (b (ii)).

Anggarkan Jumlah Pearuh (L_{Total}) dalam Rajah 2 (b (ii)).

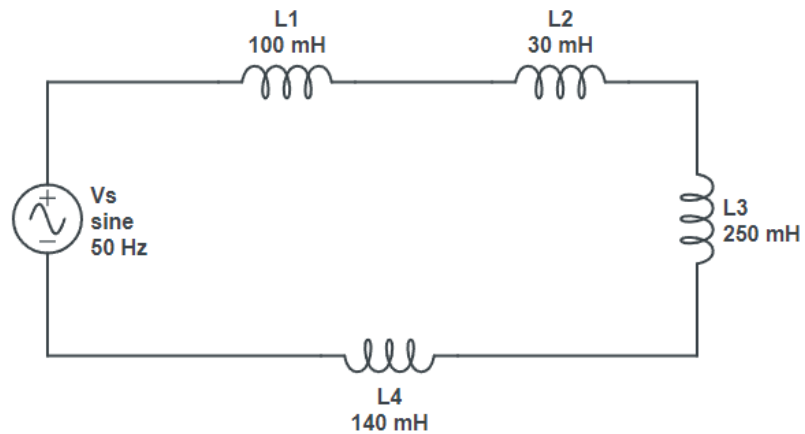


Figure 2 (b (ii)) / Rajah 2 (b (ii))

[6 marks]

[6 markah]

CLO1

- (c) A series of RL circuit consist of resistance $50\ \Omega$ and 100 mH inductance are connected to 200 V AC supply with 50 Hz frequency. Based on this information:

Litar RL siri mengandungi rintangan $50\ \Omega$ dan 100 mH aruhan disambung kepada bekalan 200 V AU dengan frekuensi 50 Hz . Berdasarkan maklumat ini:

- i. Calculate Impedance (Z).

Kira Galangan (Z).

[8 marks]

[8 markah]

- ii. Draw this RL circuit.

Lukis litar RL ini.

[3 marks]

[3 markah]

QUESTION 3

SOALAN 3

CLO1

- (a) List **FOUR (4)** magnetic substance by referring to Figure 3 (a) below.
Senaraikan EMPAT (4) bahan magnet dengan merujuk kepada Rajah 3(a) dibawah.



Figure 3(a) / Rajah 3(a)

[4 marks]

[4 markah]

CLO1

- (b) Discuss **THREE (3)** factors that affect electromagnetic strength.
Bincangkan TIGA (3) faktor yang memberi kesan kepada kekuatan elektromagnet.

[9 marks]

[9 markah]

CLO1

- (c) A core stainless steel of 60 cm length (ℓ) and cross sectional area 6 cm^2 are wound with 1200 turns of coil. It has 3A current flowing through and the relative permeability (μ_r) is 1000. Calculate:

Satu keluli tahan karat dengan Panjang 60cm (ℓ) dan luas keratan rentas 6 cm^2 dililit dengan geglung 1200 lilitan. Ia mempunyai 3A arus mengalir melaluinya dan kebolehtelapan relatif ialah 1000. Kira:

- i. Magnetomotive force, F_m .

Daya gerak magnet, F_m .

[4 marks]

[4 markah]

- ii. Magnetic Field Strength, H .

Kekuatan Medan Magnet, H .

[4 marks]

[4 markah]

- iii. Absolute permeability, μ .

Kebolehtelapan mutlak, μ .

[4 marks]

[4 markah]

QUESTION 4**SOALAN 4**

CLO1

- (a) Define Transformer.
Definisikan Pengubah.

[4 marks]

[4 markah]

CLO1

- (b) Explain Isolation (coupling) Transformer and Step Up Transformer with the aid of a diagram.

Bincangkan Pengubah Pemisah dan Pengubah Langkah Naik dengan bantuan rajah.

[10 marks]

[10 markah]

CLO1

- (c) An ideal transformer as shown in Figure 4 (c) below has 240 V, 60 Hz V_p and output voltage at 720 V with the primary winding is 1000.

Sebuah pengubah ideal ditunjukkan seperti Rajah 4(c) mempunyai 240 V, 60 Hz V_p dan voltan output pada 720 V dengan lilitan primer ialah 1000.

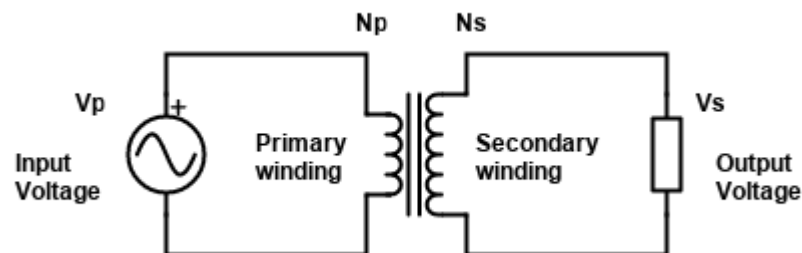


Figure 4 (c) / Rajah 4 (c)

- i. Calculate secondary winding, N_s / Kira lilitan sekunder, N_s .

[5 marks]

[5 markah]

- ii. Calculate Expected Ratio, K / Kira Nisbah Terjangka, K .

[4 marks]

[4 markah]

- iii. Figure the type of this transformer / Tunjukkan jenis pengubah ini.

[2 marks]

[2 markah]

SOALAN TAMAT