INSTRUCTION:

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

ARAHAN:

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

QUESTION 1

SOALAN 1

CLO1 (a) Name the component and unit for Figure 1(a) below.

Namakan komponen dan unit untuk Rajah 1(a) di bawah.

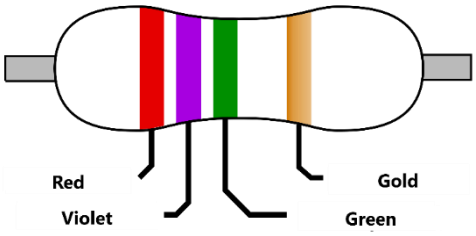

Figure 1(a) / *Rajah 1(a)*

[4 marks]

[*4 markah*]

CLO1 (b) Circuit diagram in Figure 1(b) has Total Resistance of 11 kΩ. Approximate:

Litar pada Rajah 1(b) mempunyai Jumlah Rintangan 11 kΩ. *Anggarkan:*

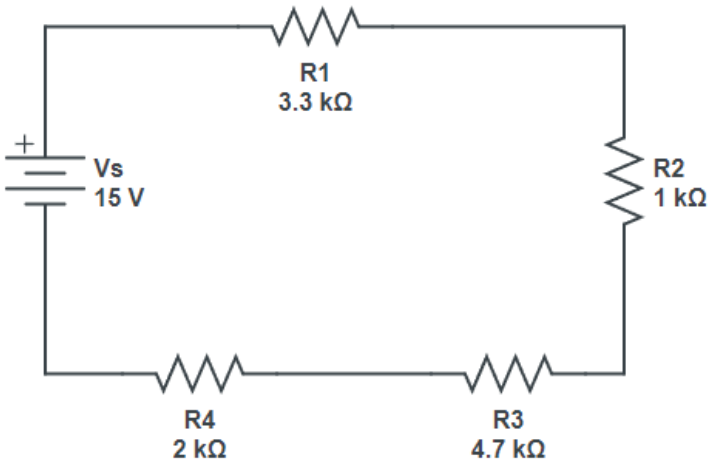

Figure 1(b) / *Rajah 1(b)*

i. Total Current, I_T.
Jumlah Arus, I_T.

[2 marks]
[2 *markah*]

ii. Voltage on R2, V_{R2}.
Voltan pada R2, V_{R2}.

[3 marks]
[3 *markah*]

iii. Voltage on R4, V_{R4}.
Voltan pada R4, V_{R4}.

[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's 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:

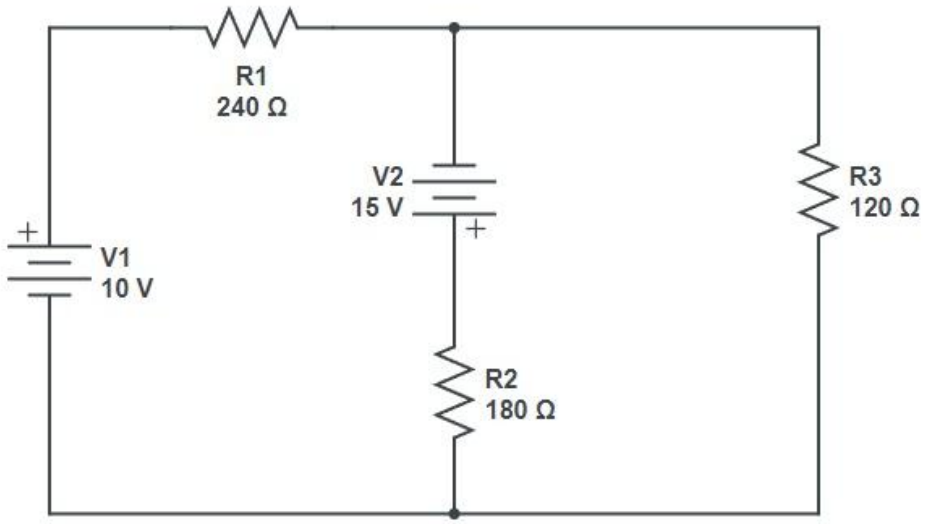

Figure 1(c) / *Rajah 1(c)*

[13 marks]
[*13 markah*]

QUESTION 2

SOALAN 2

CLO1 (a) State the name of the component A and B in Figure 2(a) below.

Nyatakan nama komponen A dan B dalam Rajah 2(a) di bawah.

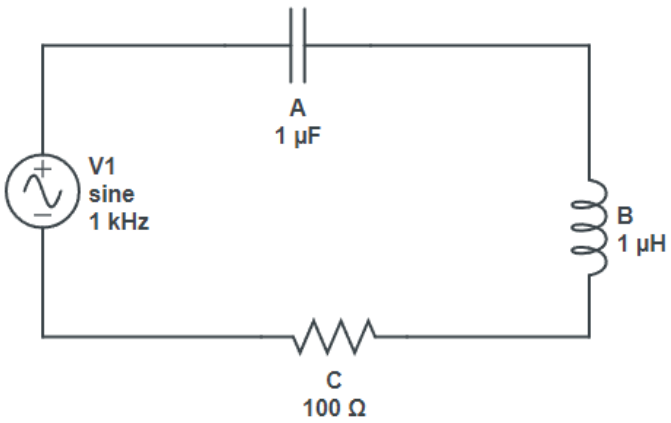

Figure 2(a) / *Rajah 2(a)*

[3 marks]

[*3 markah*]

CLO1 (b) Capacitor and Inductor are the components that are widely used in electronic circuit.

Pemuat dan Peraruh adalah komponen yang digunakan secara meluas dalam litar elektronik.

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

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

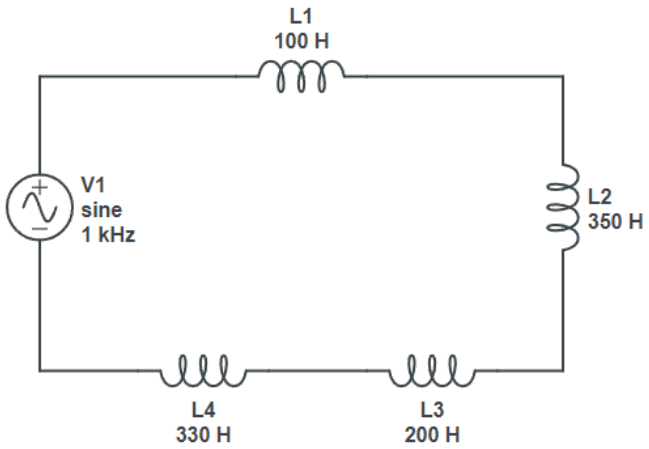

Figure 2(b)(i) / *Rajah 2(b)(i)*

[5 marks]

[*5 markah*]

ii. Approximate the Total Capacitance (C_{Total}) in Figure 2(b)(ii).
Anggarkan Jumlah Kemuatan (C_{Total}) dalam Rajah 2(b)(ii).

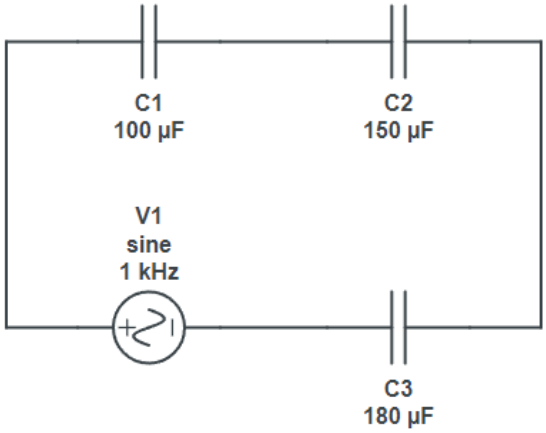

Figure 2(b)(ii) / *Rajah 2(b)(ii)*

[6 marks]
[6 *markah*]

CLO1 (c) Impedance is the measure of the opposition to electrical flow.
Galangan adalah ukuran kepada halangan dalam aliran elektrik.

i. Calculate Impedance (Z) by referring to Figure 2(c)(i).
Kira Galangan (Z) dengan merujuk kepada Rajah 2(c)(i).

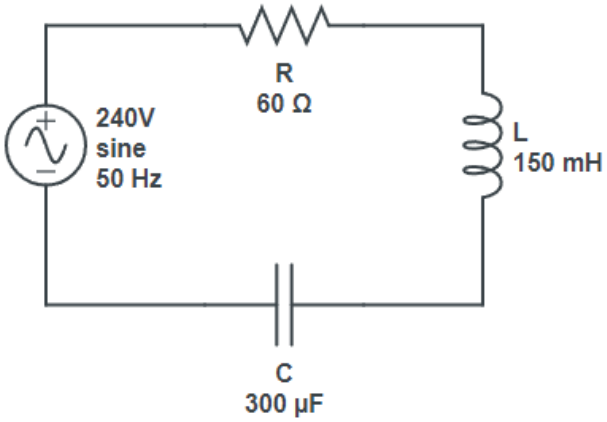

Figure 2(c)(i) / *Rajah 2(c)(i)*

[8 marks]
[*8 markah*]

ii. Draw Impedance Triangle for Figure 2(c)(i) above.
Lukis Segitiga Galangan untuk Rajah 2(c)(i) di atas.

[3 marks]
[3 *markah*]

QUESTION 3

SOALAN 3

CLO1 (a) Define Magnet.

Definisikan Magnet.

[4 marks]

[4 *markah*]

CLO1 (b) Compare Electric Circuit and Magnetic Circuit with an aid of a diagram.

Bandingkan Litar Elektrik dan Litar Magnet dengan bantuan rajah.

[9 marks]

[*9 markah*]

CLO1 (c) A coil of 300 turns is wound uniformly on a ring of non-magnetic material. The ring has a mean circumference of 40 cm and a uniform cross-sectional area of 4 cm^2. If the current in the coil is 5 A, calculate:

Satu gegelung 300 pusingan dililit secara seragam pada cincin bukan magnet. Cincin itu mempunyai purata lilitan 40 cm dan luas keratan rentas seragam 4 cm^2. Jika arus dalam gegelung ialah 5 A, kira:

i. Magnetic Field Strength, H.

Kekuatan Medan Magnet,H. [4 marks]

[4 *markah*]

ii. Permeability, μ.

Kebolehtelapan, μ. [4 marks]

[4 *markah*]

iii. Flux Density, B.

Ketumpatan Fluks, B. [4 marks]

[4 *markah*]

QUESTION 4

SOALAN 4

CLO1 (a) Name Label A, B, C and D by referring to Figure 4(a) below.

Labelkan label A, B, C dan D dengan merujuk kepada Rajah 4(a) di bawah.

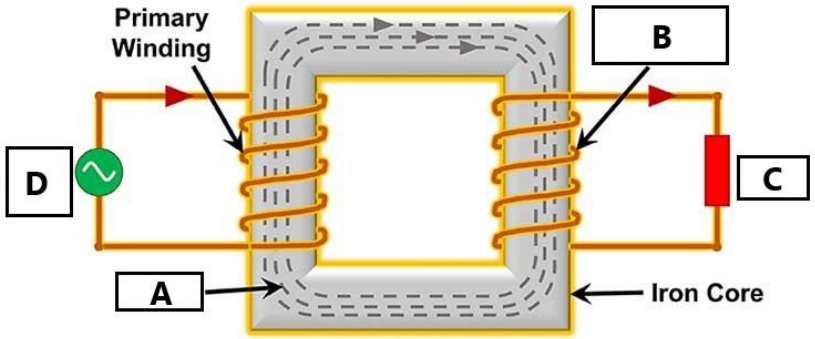

Figure 4(a) / *Rajah 4(a)*

[4 marks]

[4 *markah*]

CLO1 (b) Explain Step Up Transformer and Step Down Transformer with the aid of a diagram.

Bincangkan Pengubah Langkah Naik dan Pengubah Langkah Turun dengan bantuan rajah.

[10 marks]

[10 *markah*]

CLO1 (c) An ideal transformer is shown in Figure 4(c) below.

Sebuah pengubah ideal ditunjukkan seperti Rajah 4(c) dibawah.

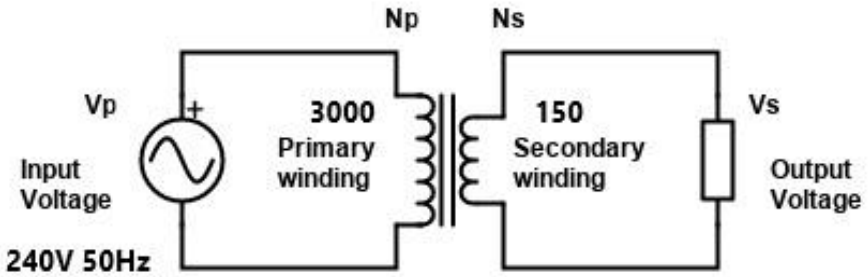

Figure 4(c) / *Rajah 4(c)*

i. Calculate secondary voltage, Vs.
Kira voltan sekunder, Vs.

[5 marks]
[5 *markah*]

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

[4 marks]
[4 *markah*]

iii. Show the type of this transformer.
Tunjukkan jenis pengubah ini.

[2 marks]
[2 *markah*]

SOALAN TAMAT