INSTRUCTION:

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

ARAHAN:

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

QUESTION 1

SOALAN 1

CLO1
C1

(a) Define all the terms below:

Takrifkan semua istilah-istilah di bawah:

i. Potential difference
Bezaupaya

ii. Resistance
Rintangan

iii. Current
Arus

[6 marks]
[*6 markah*]

CLO1
C2

(b) Explain the differences for total current (I_T) and total voltage (V_T) between series circuit and parallel circuit by using a suitable diagram.
Terangkan perbezaan jumlah arus (I_T) dan jumlah voltan (V_T) diantara litar sesiri dan litar selari dengan menggunakan gambarajah yang sesuai.

[7 marks]
[*7 markah*]

CLO1
C3

(c) Calculate the current I_{R1} , I_{R2} and I_{R3} based on the circuit given in Figure 1 (c) by using the Kirchoff Law's method.

Merujuk kepada Rajah 1(c) *kirakan arus* I_{R1} ,I_{R2} *dan* I_{R3} *dengan menggunakan kaedah Kirchoff Law's.*

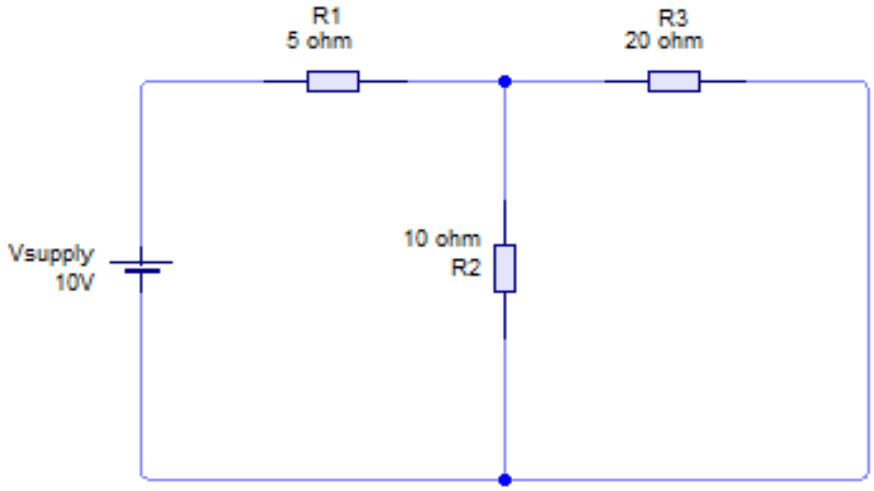

Diagram 1(c) / *Rajah 1(c)*

[12 marks]
[*12 markah*]

QUESTION 2

SOALAN 2

CLO1
C1

(a) Capacitance is an electrical property of a capacitor;

Kapasitan adalah unsur elektrik bagi sesebuah kapasitor;

i. Define capacitance

Takrifkan kapasitan

ii. State the unit for capacitance

Nyatakan unit bagi kapasitan

iii. List **THREE (3)** factors that affect capacitance value in a capacitor.
*Senaraikan **TIGA (3)** faktor yang mempengaruhi nilai kemuatan di dalam sebuah pemuat.*

[5 marks]
[*5 markah*]

CLO1
C2

(b) The capacitors of 10 µF, 30 µF, 50 µF and 60 µF are connected in parallel to a direct voltage supply of 230V.
Pemuat 10 µF, 30 µF, 50 µF dan 60 µF disambung secara selari kepada sumber voltan 230 V.

i. Draw the circuit above
Lukiskan litar di atas.

ii. Calculate the total capacitance
Kirakan jumlah kemuatan

iii. Calculate the total charge
Kirakan jumlah cas

iv. Calculate the charge on 10 µF and 50 µF capacitor
Kirakan cas pada pemuat 10 µF dan 50 µF

[10 marks]
[*10 markah*]

CLO1
C3

(c) A coil of 318.3mH inductance and a 200Ω resistor is connected in series with 240V, 50Hz supply. Calculate:

Satu gegelung mempunyai aruhan 318.3mH dan satu perintang 200Ω disambung sesiri dengan bekalan voltan 240V, 50Hz. Kirakan:

i. The inductive reactance of the coil.
Kerintangan induktif gegelung tersebut

ii. The impedance of the circuit
Galangan litar tersebut

iii. The current in the circuit
Arus litar tersebut

iv. The potential different across each component.
Beza upaya yang merintangi setiap komponen.

[10 marks]
[*10 markah*]

QUESTION 3

SOALAN 3

CLO1
C1

(a) State **THREE (3)** characteristics of magnetic flux lines.
*Nyatakan **TIGA (3)** sifat garis medan magnet.*

[6 marks]
[*6 markah*]

CLO1
C2

(b) Explain Faraday's Laws of electromagnetic induction "flux cuts conductor" with an aid of a diagram.
Terangkan Hukum Faraday bagi aruhan elektomagnetik "fluks memotong pengalir"dengan bantuan gambarajah.

[10 marks]
[*10 markah*]

CLO1
C3

(c) A coil of 200 turns is wound uniformly over a wooden ring has a mean circumference of 600mm and a uniform cross-sectional area of 500mm^2. If the current through the coil is 4A, calculate (with assumptions μ_r is =1):

Satu gelung mempunyai 200 lilitan yang dililit ke atas cincin kayu yang mempunyai ukurlilit 600mm dan luas keratan rentas 500mm^2.Jika arus yang bernilai 4A melaluinya,kirakan (dengan anggapan μ_r is =1) :

i. The magnetic field strength
Kekuatan medan magnet

ii. The flux density
Kepadatan fluks

iii. The total flux
Jumlah Fluks

[9 marks]
[9 *markah*]

QUESTION 4

SOALAN 4

CLO1
C1

(a) Define the transformer ratio, *K* then identify the type of the transformers if :
Definisikan nisbah transformer,K kemudian kenalpasti jenis-jenis transformer jika :

i. *K >1*

ii. *K<1*

iii. *K=1*

[6 marks]
[*6 markah*]

CLO1
C2

(b) Describe the transformer principle operation with an aid of a diagram.
Terangkan prinsip operasi pengubah dengan bantuan gambarajah

[10 marks]
[*10 markah*]

CLO1
C3

(c) An ideal 25kVA transformer has 500 turns on the primary winding and 40 turns on the secondary winding.The primary is connected to 3000V,50hz supply. Calculate:

Sebuah transformer ideal 25kVA mempunyai 500 lilitan di gelung utama dan 40 lilitan di gelung sekunder. Gelung utama disambungkan dengan bekalan 3000V,50hz. Kirakan:

i. The primary current,Ip
Arus di gelung utama,Ip

ii. The secondary current,Is
Arus di gelung sekunder,Is

iii. The econdary voltage,Vs
Voltan di gelung sekunder,Vs

[9 marks]
[*9 markah*]

SOALAN TAMAT