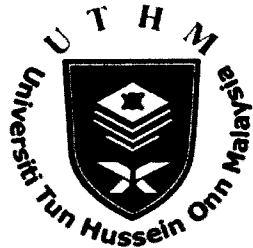


SULIT



UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**PEPERIKSAAN AKHIR
SEMESTER II
SESI 2011/2012**

NAMA KURSUS : ASAS ELEKTRIK DAN
ELEKTRONIK

KOD KURSUS : DKE 3273

PROGRAM : 3 DDM / DDT

TARIKH PEPERIKSAAN : MAC 2012

JANGKA MASA : 3 JAM

ARAHAN : JAWAB LIMA (5) SOALAN
DARIPADA TUJUH (7) SOALAN

KERTAS SOALAN INI MENGANDUNGI TIGA BELAS (13) MUKA SURAT

SULIT

SOALAN DI DALAM BAHASA MELAYU

S1 Berdasarkan RAJAH S1, tunjukkan pengiraan untuk mendapatkan nilai;

- (a) Jumlah rintangan, R_T (4 markah)
- (b) Kejatuhan voltan melalui perintang R_2 (V_{R2}), perintang R_4 (V_{R4}), perintang R_5 (V_{R5}), perintang R_6 (V_{R6}) dan perintang R_7 (V_{R7}). (8 markah)
- (c) Arus yang mengalir melalui perintang R_2 (I_{R2}), perintang R_4 (I_{R4}), perintang R_5 (I_{R5}), perintang R_6 (V_{R6}) dan perintang R_7 (I_{R7}) (8 markah)

S2 Berdasarkan RAJAH S2. Diberikan $V_A=58V$, $V_B=10V$, $R_1=4\Omega$, $R_2=3\Omega$, dan $R_3=2\Omega$. Dengan menggunakan kaedah analisa voltan node;

- (a) Carikan I_1 dan I_2 . (12 markah)
- (b) Carikan kejatuhan voltan dalam R_1 , R_2 , R_3 . (8 markah)

S3 Berdasarkan RAJAH S3, tentukan;

- (a) Jumlah kapasitor, C_{EQ} (4 markah)
- (b) Cas yang disimpan dalam setiap kapasitor C_1 , (Q_{C1}), C_3 (Q_{C3}), C_4 (Q_{C4}) dan C_6 (Q_{C6}) (6 markah)
- (c) Voltan melalui setiap kapasitor C_1 , (Q_{C1}), C_3 (Q_{C3}), C_4 (Q_{C4}) dan C_6 (Q_{C6}) (6 markah)
- (d) Jumlah cas, Q_T yang disimpan dari jumlah kapasitor, C_{EQ} (4 markah)

S4 Berdasarkan RAJAH S4, reka bentuk beban voltan agihan dengan mencari nilai;

- (a) Perintang, R_1 (5 markah)
- (b) Perintang, R_2 (5 markah)
- (c) Perintang, R_3 (5 markah)
- (d) Kuasa yang dihilangkan pada perintang, R_1 , R_2 dan R_3 (P_{R1} , P_{R2} dan P_{R3}) (5 markah)

- S5** (a) Tentukan kod warna perintang dengan menggunakan 5-band kod warna bagi setiap nilai dibawah:
- (i) $257\text{M}\Omega \pm 1.285\%$
(ii) $4.62\text{k}\Omega \pm 11.55\%$ (5 markah)
- (b) Berdasarkan **RAJAH S5(b)**, dua perintang disambungkan secara selari kepada sumber voltan 12V. Tentukan arus maksimum dan arus minimum pada setiap resistor jika kod warna pada perintang tersebut adalah;
- i) $R_1 = \text{MERAH, MERAH, MERAH, EMAS}$
ii) $R_2 = \text{KUNING, UNGU, PERANG, GANGSA}$ (8 markah)
- (c) Berdasarkan **RAJAH S5(c)**, gunakan Hukum Kirchoff untuk mengira magnitud dan arah pergerakan arus melalui kesemua perintang dalam litar ini ($I_{R1}, I_{R2}, I_{R3}, I_{R4}, I_{R6}, I_{R7}, \text{ dan } I_{R8}$). (7 markah)
- S6** Berdasarkan **RAJAH S6**, kirakan;
- (a) Voltan sekunder, V_s (4 markah)
(b) Arus sekunder, I_s (4 markah)
(c) Kuasa sekunder, P_s (4 markah)
(d) Kuasa primer, P_p (4 markah)
(e) Arus primer, I_p (4 markah)
- S7** (a) Carikan medan intensiti pada;
- i) Berdasarkan **RAJAH S7(a)**, 40 lilitan dan 10 cm panjang gegelung dengan 3 A arus mengalir melaluinya. (5 markah)
ii) Berdasarkan **RAJAH S7(b)**, 40 lilitan dan 20 cm panjang gegelung dengan 3 A arus mengalir melaluinya. (5 markah)
iii) Berdasarkan **RAJAH S7(c)**, 40 lilitan dan 10 cm panjang gegelung dengan 3 A arus mengalir melaluinya dan dililit pada rod besi sepanjang 20 cm. (5 markah)
- (b) Kirakan ketumpatan fluks dalam unit tesla apabila terdapat fluks, Φ , sebanyak $600\mu\text{Wb}$ dalam keluasan kawasan 0.0003 m^2 . (5 markah)

SOALAN DI DALAM BAHASA INGGERIS

Q1 Refer to **FIGURE Q1**, show all the calculation to find the value for;

- (a) Total resistance R_T (4 marks)
- (b) The voltage drop across resistance R_2 (V_{R2}), resistance R_4 (V_{R4}), resistance R_5 (V_{R5}), resistance R_6 (V_{R6}) and resistance R_7 (V_{R7}) (8 marks)
- (c) The current flow through resistance R_2 (I_{R2}), resistance R_4 (I_{R4}), resistance R_5 (I_{R5}), resistance R_6 (I_{R6}) and resistance R_7 (I_{R7}) (8 marks)

Q2 Refer to **FIGURE Q2**. Given $V_A = 58V$, $V_B = 10V$, $R_1 = 4\Omega$, $R_2 = 3\Omega$, and $R_3 = 2\Omega$.
By using node-voltage analysis method:

- (a) Find I_1 and I_2 . (12 marks)
- (b) Find voltage drop in R_1 , R_2 , R_3 . (8 marks)

Q3 Refer to **FIGURE Q3**, determine;

- (a) Total equivalent capacitance, C_{EQ} (4 marks)
- (b) The charge stored each capacitor C_1 , (Q_{C1}), C_3 (Q_{C3}), C_4 (Q_{C4}) and C_6 (Q_{C6}) (6 marks)
- (c) The voltage across each capacitor C_1 , (Q_{C1}), C_3 (Q_{C3}), C_4 (Q_{C4}) and C_6 (Q_{C6}) (6 marks)
- (d) The total charge, Q_T stored by the equivalent capacitor, C_{EQ} (4 marks)

Q4 Refer to **FIGURE Q4**, design the loaded voltage divider by finding the value of:

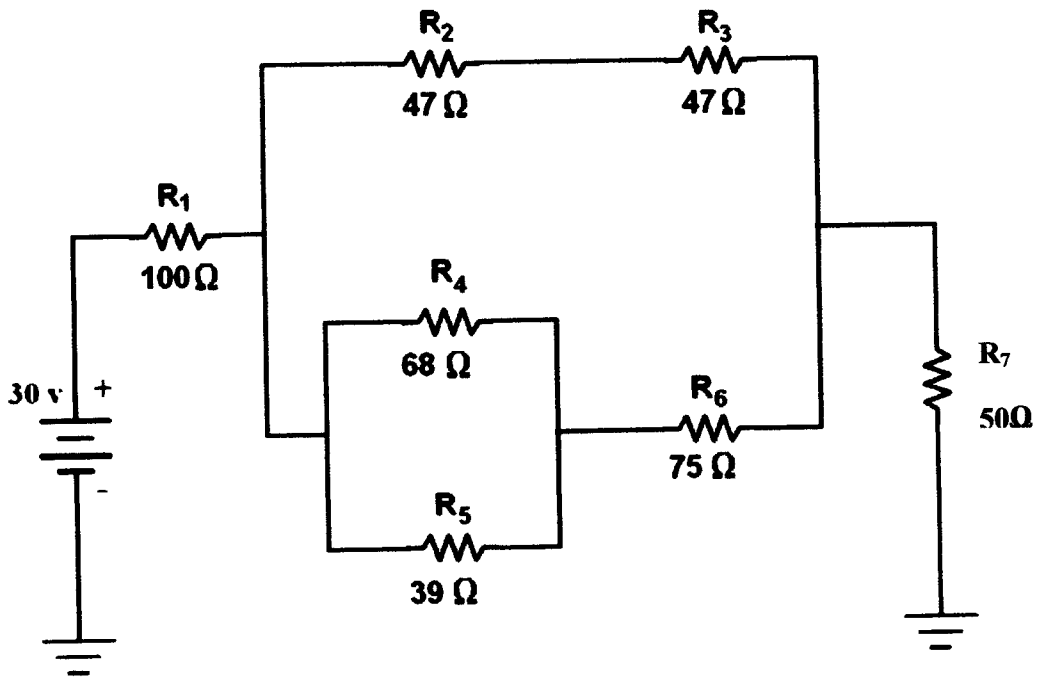
- (a) The resistance, R_1 (5 marks)
- (b) The resistance, R_2 (5 marks)
- (c) The resistance, R_3 (5 marks)
- (d) Power dissipated at resistor R_1 , R_2 and R_3 , (P_{R1} , P_{R2} and P_{R3}) (5 marks)

- Q5** (a) Determine the resistor color coding by using Five-Band Color Code for each value below:
- i) $257\text{M}\Omega \pm 1.285\text{ M}\Omega$
 - ii) $4.62\text{k}\Omega \pm 11.55\ \Omega$
- (5 marks)
- (b) Refer to **FIGURE Q5(b)**, two resistor is connected parallel to the voltage source 12V. Determine the maximum current and minimum current at each of the resistor if the color coding for the resistor is:
- i) $R_1 = \text{RED, RED, RED, GOLD}$
 - ii) $R_2 = \text{YELLOW, VIOLET, BROWN, SILVER}$
- (8 marks)
- (c) Refer to **FIGURE Q5(c)**, Use Kirchhoff's Current Law to calculate the magnitudes and directions of currents through all resistors in this circuit (I_{R1} , I_{R2} , I_{R3} , I_{R4} , I_{R6} , I_{R7} , and I_{R8}).
- (7 marks)
- Q6** Refer to **FIGURE Q6**, calculate;
- (a) The secondary voltage, V_s (4 marks)
 - (b) The secondary current, I_s (4 marks)
 - (c) The secondary power, P_s (4 marks)
 - (d) The primary power, P_p (4 marks)
 - (e) The primary current, I_p (4 marks)
- Q7** (a) Find the field intensity for:
- i) Refer to figure Q7(a), 40-turn and 10-cm long coil with 3 A current flowing in it. (5 marks)
 - ii) Refer to figure Q7(b), 40-turn and 20-cm long coil with 3 A current flowing in it. (5 marks)
 - iii) Refer to figure Q7(c), 40-turn and length of coil is 10 cm and 3 A current flowing and wound around an iron core that is 20 cm long. (5 marks)
- (b) Calculate the flux density in teslas when there exists a flux of $600\mu\text{Wb}$ through an area of 0.0003 m^2 ? (5 marks)

PEPERIKSAAN AKHIR
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COURSE : ELEKTRONIK

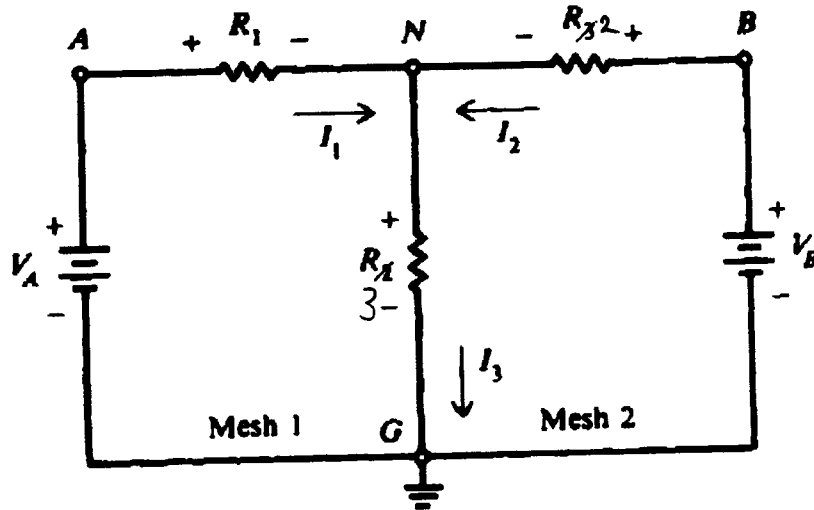
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PROGRAMME
KOD KURSUS : DKE3273
COURSE CODE

**RAJAH S1 / FIGURE Q1**

PEPERIKSAAN AKHIR
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SEMESTER / SESSION
KURSUS : ASAS ELEKTRIK DAN
COURSE : ELEKTRONIK

PROGRAM : 3 DDM / 3DDT
PROGRAMME
KOD KURSUS : DKE3273
COURSE CODE

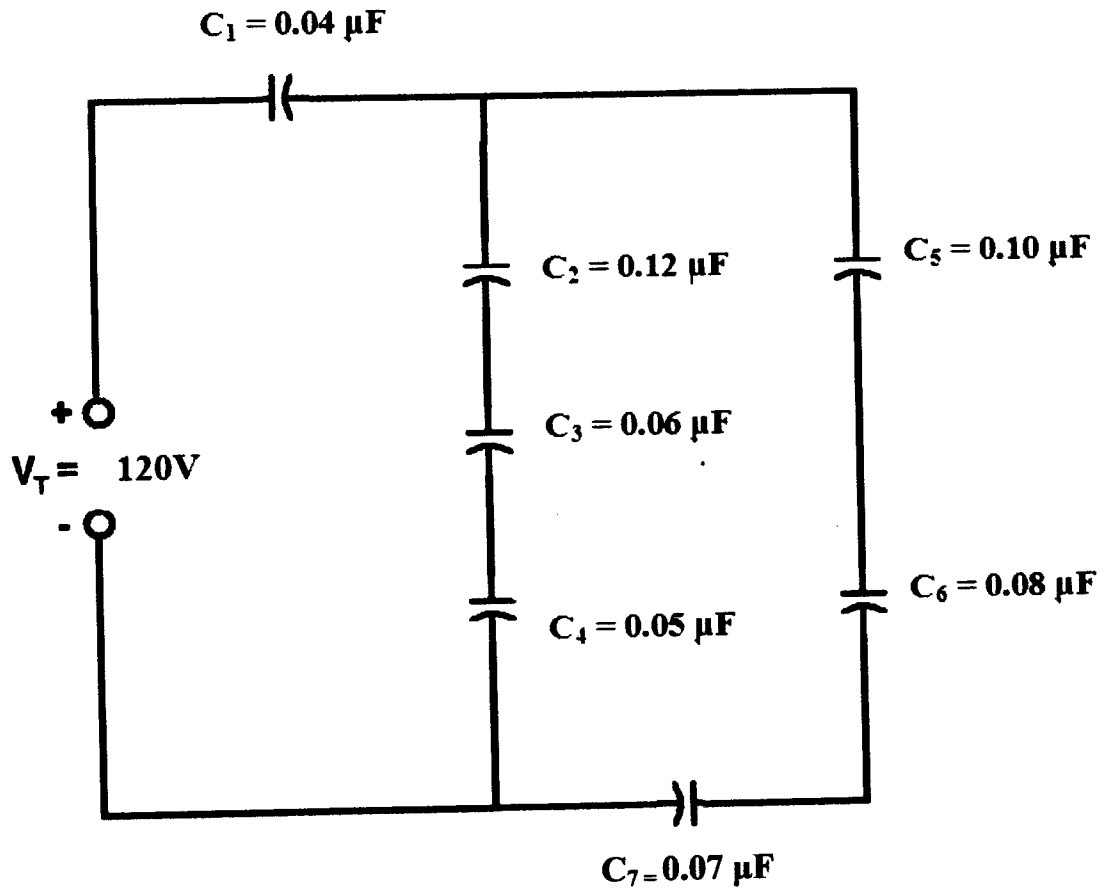


RAJAH S2 / FIGURE Q2

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COURSE ELEKTRONIK

PROGRAM : 3 DDM / 3DDT
PROGRAMME
KOD KURSUS : DKE3273
COURSE CODE

**RAJAH S3 / FIGURE Q3**

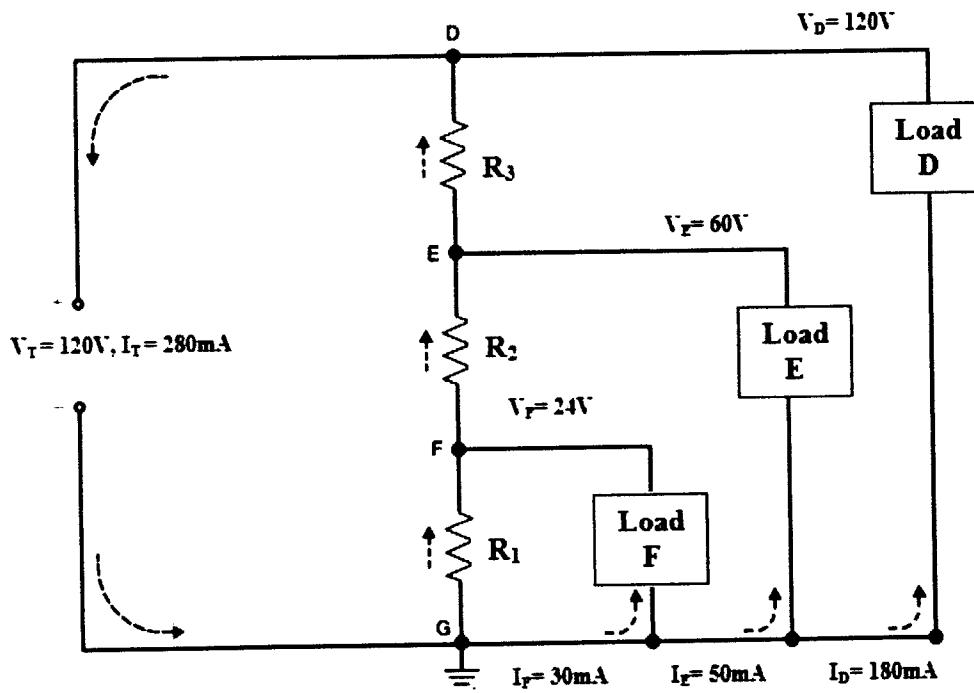
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SEMESTER / SESI : SEM 2 / 2011/2012
SEMESTER / SESSION

PROGRAM : 3 DDM / 3DDT
PROGRAMME

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RAJAH S4 / FIGURE Q4

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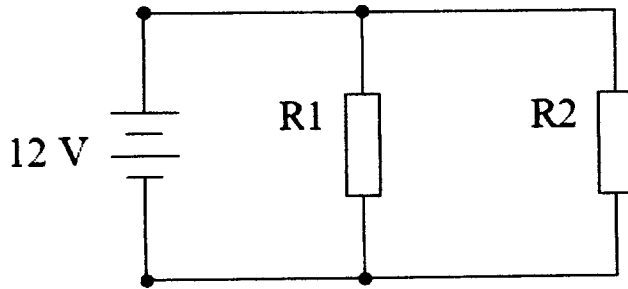
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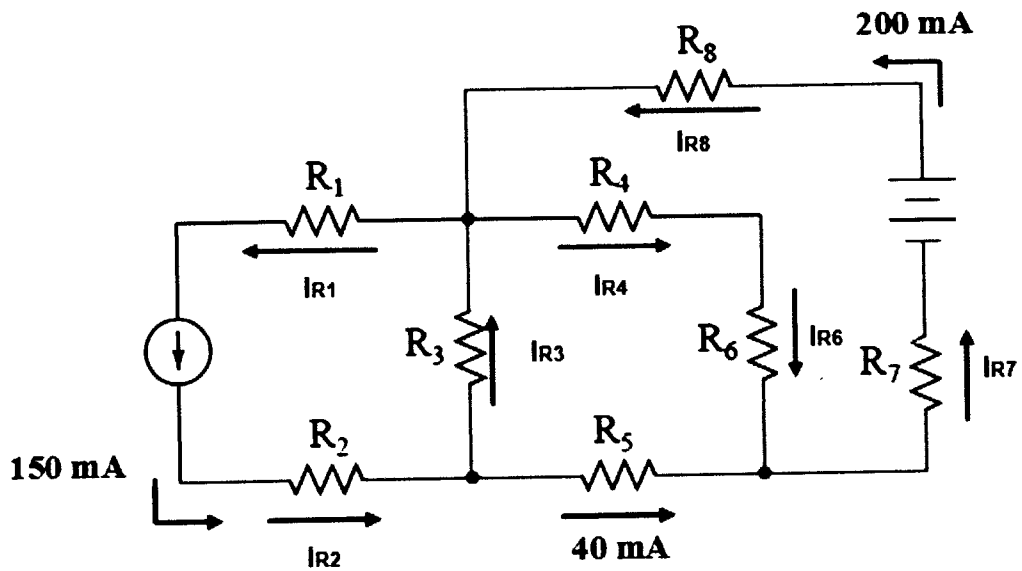
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RAJAH S5(b) / FIGURE Q5(b)



RAJAH S5(c) / FIGURE Q5(c)

PEPERIKSAAN AKHIR
FINAL EXAMINATION

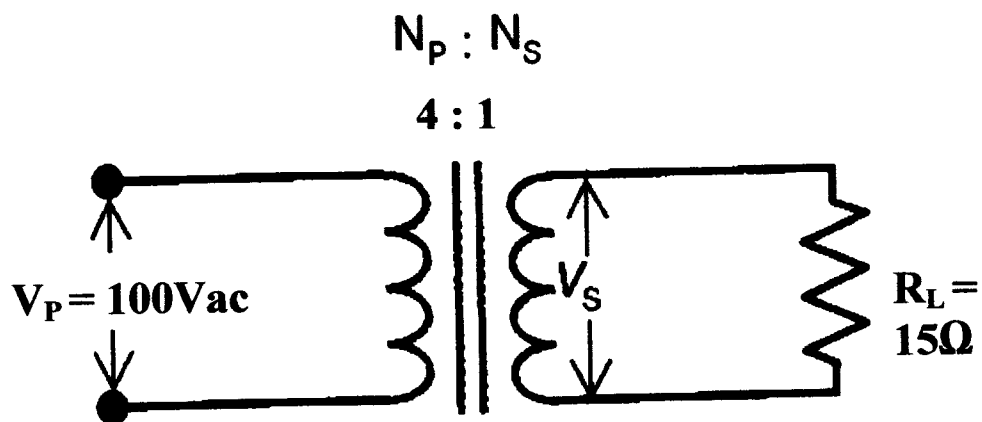
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SEMESTER / SESSION

KURSUS : ASAS ELEKTRIK DAN
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PROGRAM : 3 DDM / 3DDT
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RAJAH S6 / FIGURE 06

PEPERIKSAAN AKHIR
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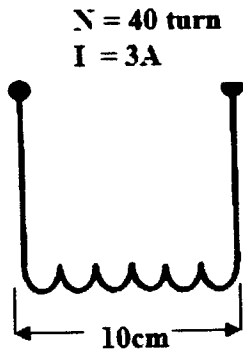
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SEMESTER / SESSION

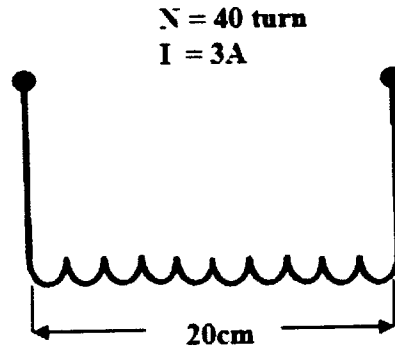
PROGRAMME

KURSUS : ASAS ELEKTRIK DAN
COURSE : ELEKTRONIK

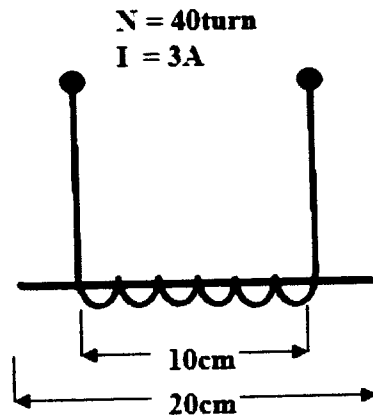
KOD KURSUS : DKE3273
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RAJAH S7(a) / FIGURE S7(a)














RAJAH S7(b) / FIGURE S7(b)



RAJAH S7(c) / FIGURE S7(c)

References :

Band Color	Digit	Multiplier	Tolerance
Black	 0	1	---
Brown	 1	10	$\pm 1\%$
Red	 2	100	$\pm 2\%$
Orange	 3	1,000	$\pm 3\%$
Yellow	4	10,000	$\pm 4\%$
Green	 5	100,000	---
Blue	 6	1,000,000	---
Violet	 7	10,000,000	---
Gray	 8	100,000,000	---
White	 9	---	---
Gold	 ---	0.1	$\pm 5\%$
Silver	 ---	0.01	$\pm 10\%$
None	---	---	$\pm 20\%$