UNIVERSITI TUN HUSSEIN ONN MALAYSIA

PEPERIKSAAN AKHIR
SEMESTER II
SESI 2008/2009

NAMA MATA PELAJARAN	:	ASAS ELEKTRIK DAN ELEKTRONIK
KOD MATA PELAJARAN	:	DKE 3273
KURSUS	:	3 DDM. DDT, DDX
TARIKH PEPERIKSAAN	:	APRIL 2009
JANGKA MASA	:	2½ JAM
ARAHAN	:	JAWAB **EMPAT (4)** SOALAN SAHAJA DARIPADA ENAM (6) SOALAN

KERTAS SOALAN INI MENGANDUNGI 6 MUKA SURAT BERCETAK

Q1 (a) Define Ohm's law.

(2 marks)

(b) Three lamps have the following rated values: 60 W 240 V, 100 W 200 V, and 40 W 100 V. Calculate the power dissipated by each if they are connected in series across a 240 V supply.

(23 marks)

Q2 (a) From the circuit of **Figure Q2(a)**, calculate:-

(i) total resistance (R_T), total current (I_T), and total power (P_T).

(10 marks)

(ii) voltage drop at resistors R_1, R_2, R_3 and R_4.

(8 marks)

(iii) currents, I_1 and I_2.

(4 marks)

(b) Give **TWO (2)** comparisons between parallel circuits and series circuits.

(3 marks)

Q3 (a) Define magnetomotive force (MMF).

(3 marks)

(c) An iron ring of mean length 60 cm has an air gap of 2 mm and a winding of 300 turns. If the relative permeability of iron used in the ring is 400 when a current of 1.5A flows through it, find the flux density.
($\mu_o = 4\pi \times 10^{-7}$)

(12 marks)

(d) State **FIVE (5)** points of similarities between magnetic circuits and electric circuits.

(10 marks)

Q4 (a) From the circuit shown in **Figure Q4(a)**, solve for the following:-

(i) Z_T. (3 marks)

(ii) I_T, I_R, I_C, and I_L. (5 marks)

(iii) V_R, V_C, and V_L. (9 marks)

(iv) θ_Z. (3 marks)

(v) phasor diagram for equivalent circuit. (3 marks)

(b) State the purpose of phasor diagram. (2 marks)

Q5 (a) List **FIVE (5)** types of the transformer.

(5 marks)

(b) An ideal transformer has a primary coil current of 32 A and an applied voltage of 240 V. The secondary coil current is 2 A. Calculate:-

(i) power input of primary coil, P_P. (3 marks)

(ii) power output of secondary coil, P_S. (3 marks)

(iii) secondary coil voltage, V_S. (3 marks)

(iv) turns ratio. (3 marks)

(c) State the type of the transformer used in Q5(b). Briefly explain your answer.

(3 marks)

(d) Give **THREE (3)** comparisons between step-up and step-down transformers.

(5 marks)

Q6 (a) Draw simple circuit diagrams to show how a transistor can be connected in:-

(i) common base configuration. (2 marks)

(ii) common emitter configuration. (2 marks)

(iii) common collector configuration. (2 marks)

(b) With the aid of suitable diagram, briefly explain the principle of a rectifier circuit used to produce half- wave rectification.

(7 marks)

(c) Explain the action of the SCR (thyristor) in terms of the two transistor model.

(8 marks)

(d) State **TWO (2)** functions for each of the following components in electronic circuits.

(i) diode
(ii) transistor

(4 marks)

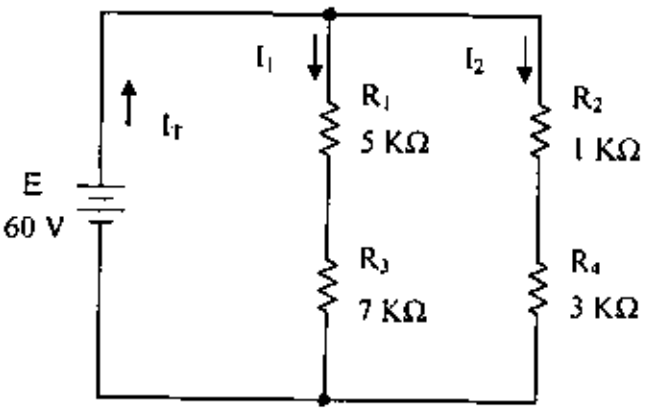

FIGURE Q2(a)

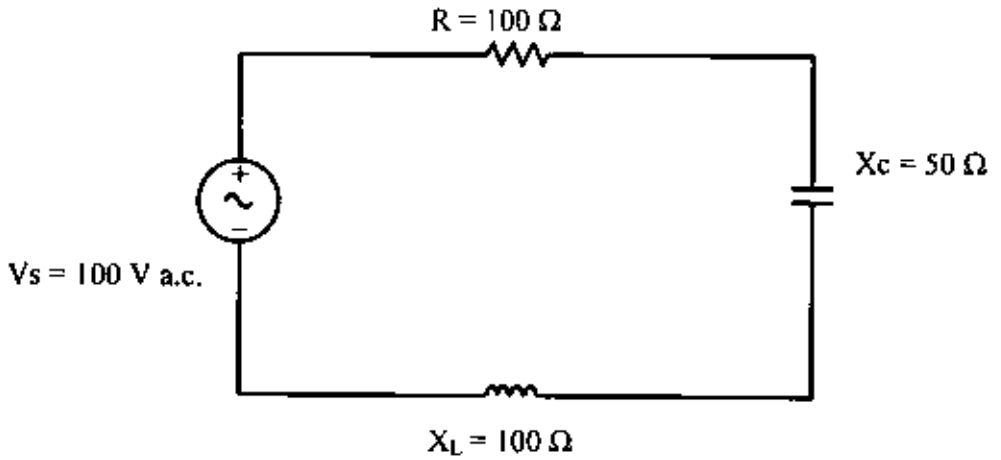

FIGURE Q4 (a)