



UNIVERSITI KUALA LUMPUR
Malaysia France Institute

FINAL EXAMINATION
JANUARY 2011 SESSION

SUBJECT CODE : FEB 10202
SUBJECT TITLE : ELECTRICAL PRINCIPLES
LEVEL : BACHELOR
TIME / DURATION : 3.30pm – 6.00pm
(2.5 HOURS)
DATE : 09 MAY 2011

INSTRUCTIONS TO CANDIDATES

1. Please read the instructions given in the question paper **CAREFULLY**.
2. This question paper is printed on both sides of the paper.
3. Please write your answers on the answer booklet provided.
4. Answer should be written in blue or black ink except for sketching, graphic and illustration.
5. This question paper consists of **TWO (2)** sections. Section A and B. Answer all questions in Section A. For Section B, answer three (3) questions only.
6. Answer all questions in English.

THERE ARE 5 PAGES OF QUESTIONS AND 1 PAGE OF APPENDIX, EXCLUDING THIS PAGE

SECTION A (Total: 40 marks)

INSTRUCTION: Answer ALL questions.
Please use the answer booklet provided.

Question 1

a) State the Kirchoff's Voltage Law and Kirchoff's Current Law (4 marks)

b) Convert the following SI units

- i. $-4.2 \times 10^{-2} \text{ m}^2$ to square centimeters
- ii. $15.43 \times 10^{-6} \text{ kV}$ to millivolts
- iii. $10.45 \times 10^5 \text{ mW}$ to kilowatts

(4 marks)

c) Based on the circuit in **Figure 1**, determine:

- i. The total resistance of the circuit.
- ii. The voltage across each resistor.
- iii. The current flow in R_2 .
- iv. The power dissipated in R_2 .

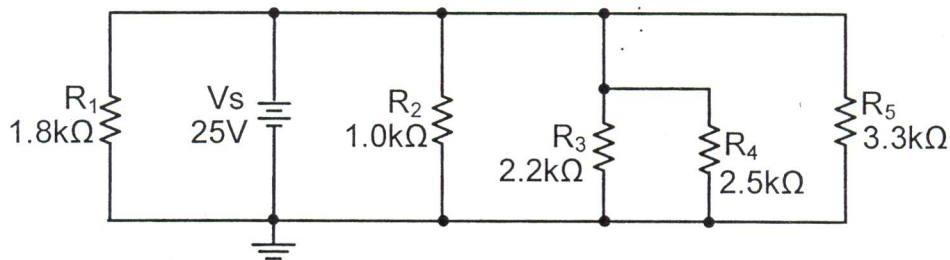


Figure 1

(12 marks)

Question 2

- (a) State three (3) applications of capacitor in electrical and electronic area.

(3 marks)

- (b) Prove that the summation of resistor in parallel is given by

$$\frac{1}{R_t} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3} + \dots + \frac{1}{R_n}$$

(4 marks)

- (c) If $i(t) = 14 \sin(4\pi \times 100t)$ mA, determine

- i. The peak and rms value of the current
- ii. The angular velocity and frequency
- iii. The value of voltage at $t = 0$ s, 1.25 ms, 2.5 ms and 3.75 ms
- iv. Sketch the waveform with the time in seconds

(13 marks)

