CONFIDENTIAL





UNIVERSITI KUALA LUMPUR Malaysia France Institute

FINAL EXAMINATION

JANUARY 2014 SESSION

SUBJECT CODE	:	FED 10202
SUBJECT TITLE	:	ELECTRICAL PRINCIPLES
LEVEL	:	DIPLOMA
TIME / DURATION	:	2 HOURS
DATE	:	

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. Answers 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 one (1) question only.
- 6. Answer all questions in English.

THERE ARE 5 PAGES OF QUESTIONS, EXCLUDING THIS PAGE.

SECTION A (Total:60 marks)

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

Question 1

For the circuit shown in **Figure 1**, the current at switch position A is 20.675mA. Determine:

(a) The main characteristics of series circuits in terms of resistances, currents and voltage drop across resistors.

	((6 marks)
(b) Th	e resistance value for R5.	
		(2 marks)
(c) Th	e current for switch position B,C and D.	<i>(</i>
/ ·· · —·	((9 marks)
(d) Th	e minimum current rating for the fuse in this circuit.	

(3 marks)



Figure 1

Question 2

For the circuit shown in Figure 2, determine:



(6 marks)



Figure 2

Question 3

(a) Describe the basic construction of a capacitor.

(4 marks)

(b) Describe the charging and discharging process of a capacitor.

(6 marks)

(c) How long will it take for the initially uncharged capacitor in **Figure 3** to charge to 6V?

(6 marks)

(d) Calculate the fully charged capacitor voltage 1ms after the switch is closed for discharge?

(4 marks)



Figure 3

SECTION B (Total: 40 marks)

INSTRUCTION: Answer ONE (1) question only Please use the answer booklet provided.

Question 4

For the circuit shown in Figure 4, determine:

(a) the time constant, T.

(10 marks)

(b) current at time τ , 2τ , 3τ , 4τ and 5τ measured from the switch is closed.

(c) the physical properties that affect inductance.

(10 marks)

(20 marks)



Figure 4

Question 5

Refer to Figure 5.

(a) Determine the voltages V_{AB} , V_{CD} , $V_{(CT)C}$ and V_{EF} .

(20 marks)

(b) Describe center-tapped, autotransformer and multiple winding transformer.

(20 marks)



Figure 5

END OF QUESTION PAPER