



UNIVERSITI KUALA LUMPUR
MALAYSIA FRANCE INSTITUTE

FINAL EXAMINATION
JULY 2010 SESSION

SUBJECT CODE : FEB16103
SUBJECT TITLE : ELECTRICAL AND ELECTRONICS FUNDAMENTALS
LEVEL : BACHELOR
DURATION : 12.30pm – 3.30pm
(3 HOURS)
DATE / TIME : 11 NOVEMBER 2010

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. Answer all questions.
 6. Answer all questions in English.
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THERE ARE 5 PRINTED PAGES OF QUESTIONS

INSTRUCTION: Answer ALL questions.

Please use the answer booklet provided.

Question 1

- a) From the Figure 1.0, determine the thevenin equivalent circuit as seen by R_L .
- The thevenin equivalent resistances

(5 marks)

- The thevenin voltage

(5 marks)

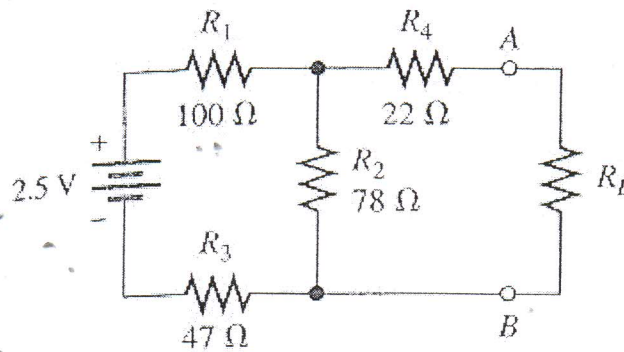


Figure 1.0

- b) From the circuit shown in figure 2.0, Calculate the voltage

- At point between A and B

(3 marks)

- At point between A and C

(4 marks)

- At point between A and D

(4 marks)

- At point between B and C

(4 marks)

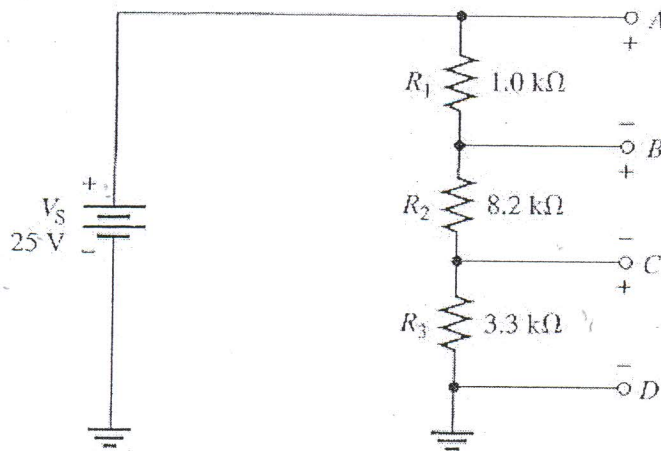


Figure 2.0

Question 2

- a) For a half wave rectifier circuit have forward resistance and can be considered negligible and infinite reverse resistances. The alternating supply voltage is 200rms and the resistive load is 60Ω . Calculate
- The mean load current
(5 marks)
 - The rectifier efficiency
(5 marks)
- b) Four diode are used in a bridge rectifier circuit have forward resistance and can be considered negligible and infinite reverse resistances. The alternating supply voltage is 240rms and the resistive load is 30Ω . Calculate
- The mean load current
(5 marks)
 - The rectifier efficiency
(5 marks)
- c) Describe with the aid of suitable diagram, the full wave bridge rectifier action of a semiconductor diode.
(5 marks)

Question 3

a) Convert

i. 15_{10} to binary

(3 marks)

ii. 5632 to binary

(3 marks)

b) Simplify the following expression

i. $F = (A + B.\bar{C}).(A + B.\bar{C})$

(5 marks)

ii. $F = (A + B).(\overline{A + B})$

(5 marks)

c) For the following circuit in figure 3.0, Determine

i. The relationship between the output Z and the input A, B and C.

(4 marks)

ii. Construct a truth table for the function.

(5 marks)

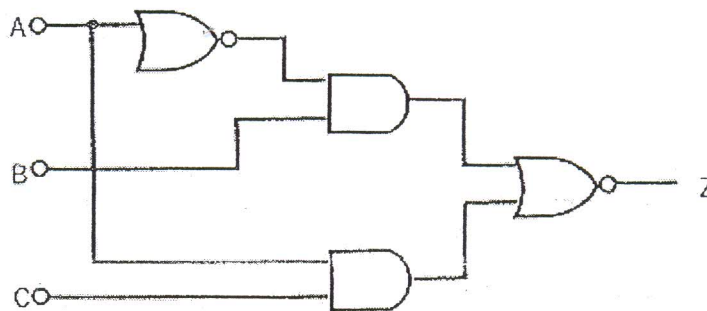


Figure 3.0

Question 4

- a) The rectifier at figure 4.0 is assuming to be ideal. Calculate the peak current in each of the resistor given that the supplied voltage is sinusoidal.

(5 marks)

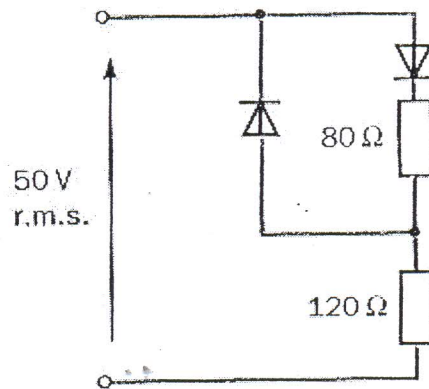


Figure 4.0

- b) As refer to the circuit in Figure 5.0, determine

i. The voltage at load R_L

(5 marks)

ii. The current at load R_L

(5 marks)

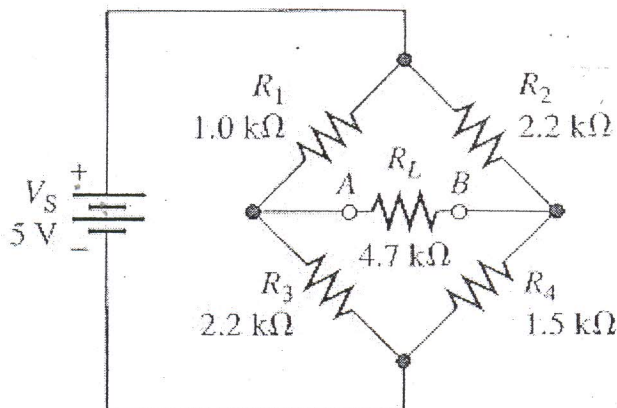


Figure 5.0

- c) For a half wave rectifier circuit have forward resistance and can be considered negligible and infinite reverse resistances. The alternating supply voltage is 200rms and the resistive load is 60Ω . Calculate
- i. The mean load current
(5 marks)
 - ii. The rectifier efficiency
(5 marks)

END OF QUESTION