



FIJI NATIONAL UNIVERSITY

COLLEGE OF ENGINEERING, SCIENCE & TECHNOLOGY
SCHOOL OF ELECTRICAL & ELECTRONIC

ENGINEERING

TRADE DIPLOMA IN ELECTRICAL ENGINEERING
STAGE 4

EEE535--ELECTRO- TECHNOLOGY

SEMESTER 2 - 2016.

Total marks-100-----Duration: 3Hrs 10 Minutes

DAY/DATE: _____ TIME: _____ ROOM: As per timetable.

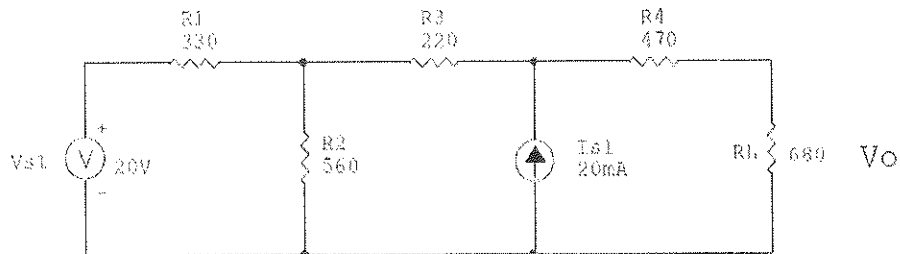
INSTRUCTIONS TO STUDENTS

1. You are allowed 10 minutes Extra reading time during which you are NOT to write.
2. Begin each answer on a fresh page and use both sides of the sheet.
3. Write your candidate-number at the top of each attached sheet.
4. Insert all written sheets in their correct sequence and secure with string.
5. For all sheets of paper on which rough/draft work has been done, cross it though and you
MUST ATTACH to your answer scripts.
6. Write clearly the number(s) of the question(s) attempted on the top of each sheet.
7. Answer all Questions
8. Show all workings where necessary.
9. Do not use programmable calculators, especially the ones that does the conversions of
Number systems
10. CHECK YOUR WORK BEFORE YOU LEAVE THE ROOM!

Attempt all the questions

Question 1

a) Reduce the circuit shown to its Thevenin and Norton equivalent circuits. (15 marks)

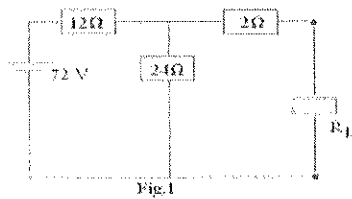


b) Find the value of R_L for maximum power transfer in the circuit (5 marks)

c) Find the maximum power. (5 marks)

Question 2

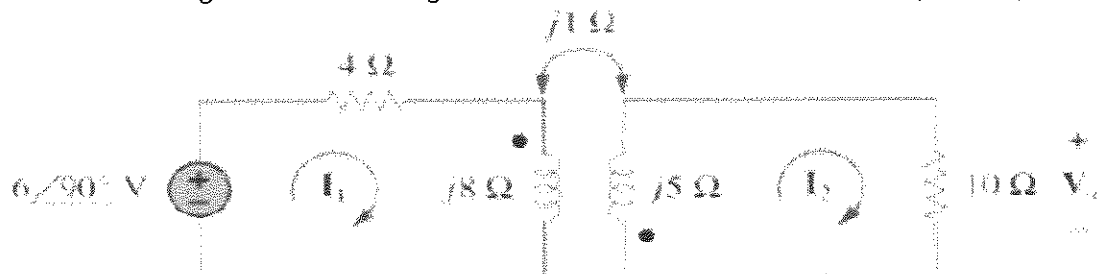
For the circuit shown in Fig. 1, find the value of R_L for maximum power transfer.



(5 marks)

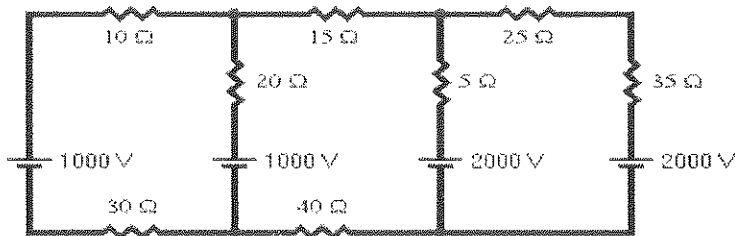
Question 3

Determine the voltage V_o in the circuit given (5 marks)



Question 4

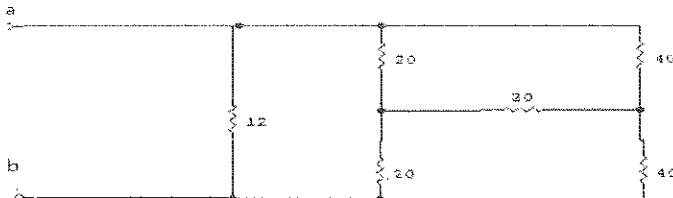
Use nodal analysis to find the voltage at each node of this circuit.



(10 marks)

Question 5

Execute $Y \rightarrow \Delta$ (R_{ab})

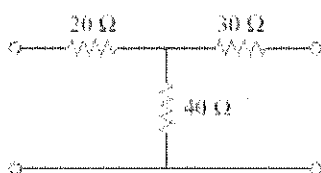


(10 marks)

Question 6

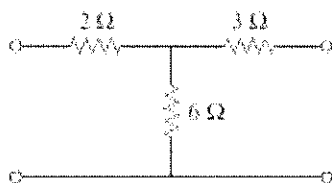
a) Given the following circuit. Determine the Z parameters

(10 marks)



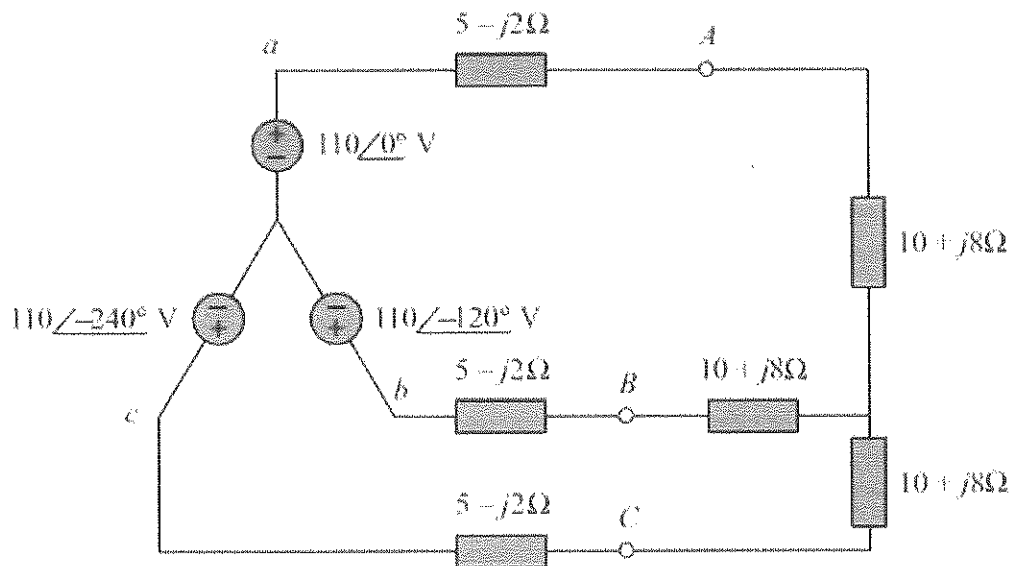
b) Obtain hybrid parameters for the network shown

(10 marks)



Question 7

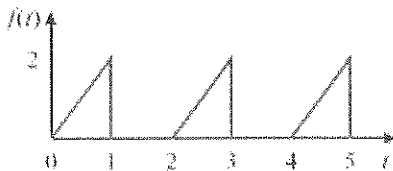
Calculate the line currents in the three wire Y-Y system in the figure shown below



(10marks)

Question 8

- a) Find the Laplace transform of $\int_0^t \sin(at) \cos(at) dt$ (5marks)
- b) Calculate the Laplace transform of the periodic function given below



(10 marks)

-----THE END-----