

**COLLEGE OF ENGINEERING, SCIENCE AND TECHNOLOGY
SCHOOL OF ELECTRICAL AND ELECTRONICS ENGINEERING**

BACHELOR OF ENGINEERING PROGRAMME, YEAR 2 (BENG 2)

EEE681 ELECTROTECHNOLOGY

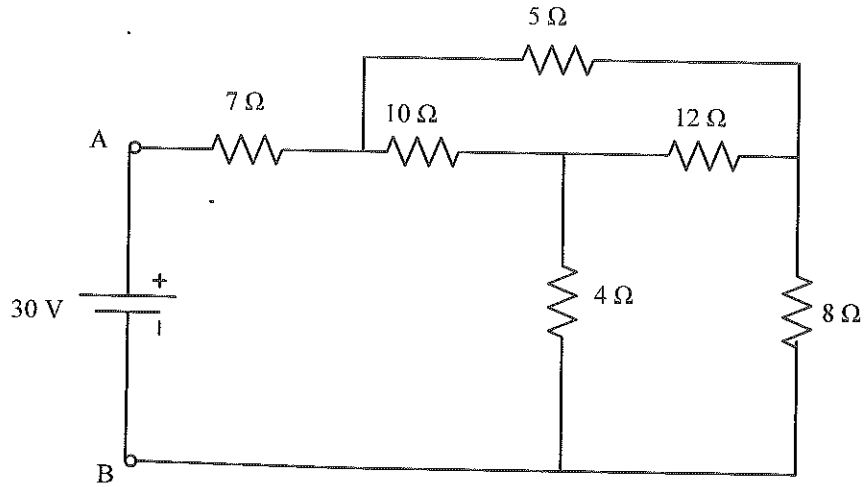
FINAL EXAMINATION (SEMESTER 1, 2016)

DATE/TIME/ROOM – Refer to Timetable

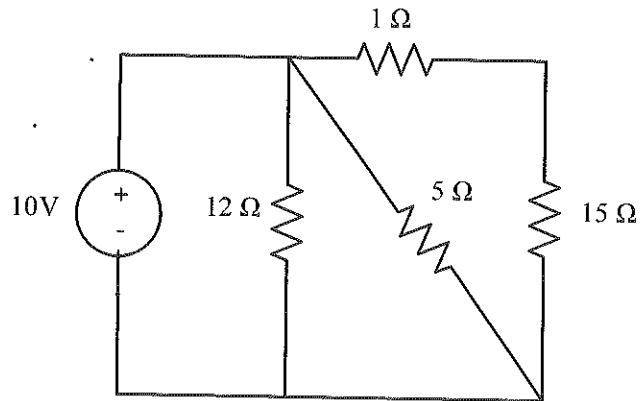
INSTRUCTIONS TO CANDIDATES

1. You are allowed 10 minutes extra time during which you are not to write.
2. Begin each answer on a fresh new page and use both sides of the sheets.
3. Write your identification number on the top of each attached sheet.
4. Insert all written foolscaps, graph paper, drawing paper etc. in their correct sequence and secure with string provided.
5. For all sheets of paper in which rough work has been done, cross it through and you must attach to your answer script.
6. Write clearly the number(s) of the question(s) attempted on the top of each sheet.
7. *ANSWER ONLY TEN QUESTIONS.*

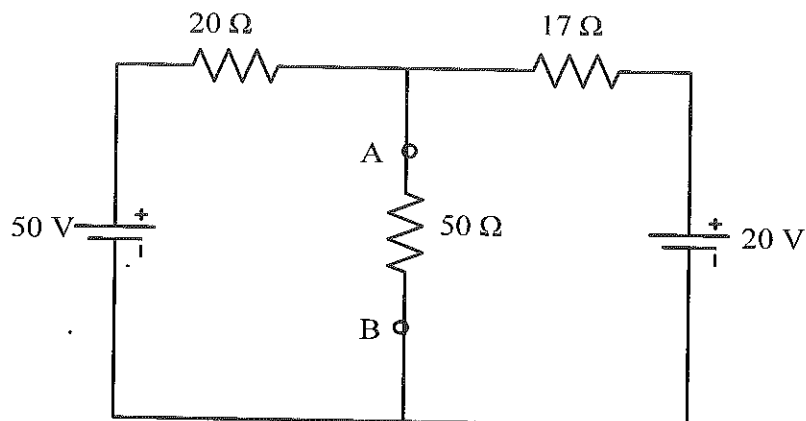
1. Determine the resistance between nodes A & B and current supplied by the 30 Volt supply shown in figure.



2. Determine the current through all branches and power supplied by the voltage source shown in Figure. Also calculate the maximum power absorbed by the 15 Ω resistance.

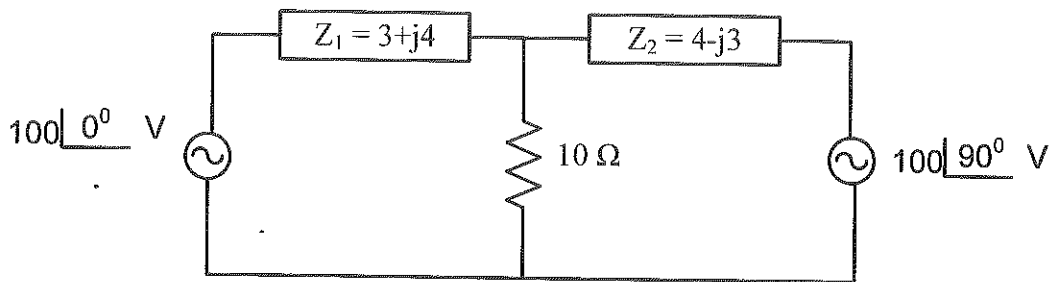


3. Determine the current through branch AB by Norton's theorem or Thevenin's theorem.

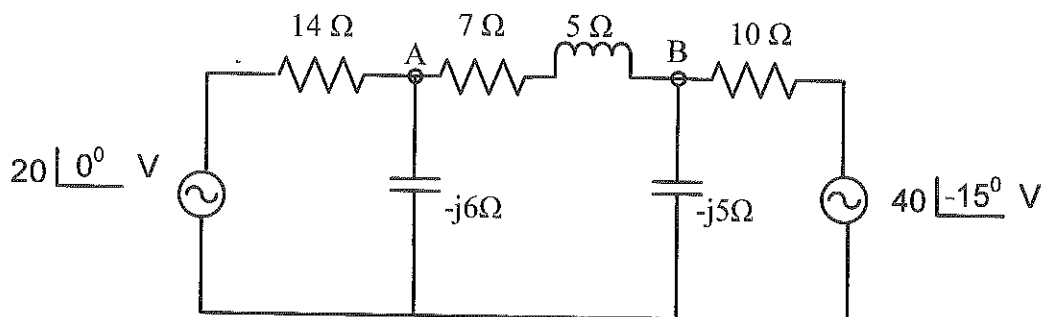


OR

Determine the current in the 10Ω resistor in the circuit by mesh current analysis.



4. Consider the circuit shown in the figure, determine the voltage drop V_{AB} .



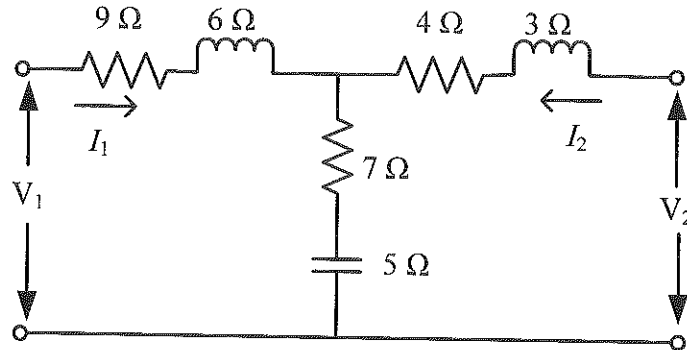
5. Three coils have a resistance of 20Ω and inductor of 0.05H are connected in star connection and delta connection to a three-phase, 50 Hz , 400 V supply. Calculate the total power absorbed and line current in each case.

OR

The power input to a 200V , 50 Hz , three-phase induction motor running on full load at an efficiency of 90% is measured by two wattmeter which indicate 300W and 100W respectively. Calculate (a) power factor (b) the input power (c) the line current (d) output power.

- Discuss open circuit parameters for a two port network and find the relation with the transmission parameters for two port network and vice versa.
- A balanced star connected load of $(5 + j 7) \Omega$ per phase is connected to a balanced star, connected three-phase 400 V supply. Find line current, power factor, active power, reactive power and total volt ampere.
- Phase voltages and current of a star connected inductive load is 150 V and 25 A . Power factor of the load is 0.707 (lagging). Assuming that the system is three wire and power is measured using two wattmeter methods. Find the readings of the wattmeter.

9. Consider the circuit , determine
- Admittance parameter
 - Hybrid parameter
 - Transmission parameter



10. The unbalanced three-phase load voltages of a star connected circuit are $V_{an} = 312.53 \angle 8.69^\circ$ V, $V_{bn} = 157.4 \angle -103.81^\circ$ V and $V_{cn} = 250.1 \angle 98.64^\circ$ V. Obtain the zero sequence and positive sequence components.

11. Determine the resistance between nodes A & B by using star delta transformation method given in Fig. (a) & Fig. (b).

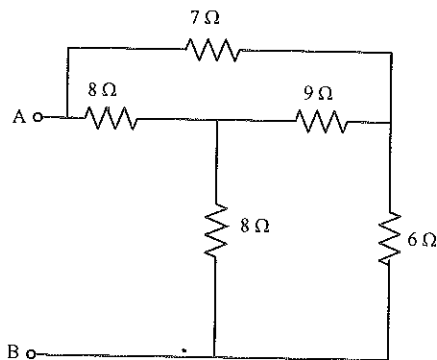


Fig. (a)

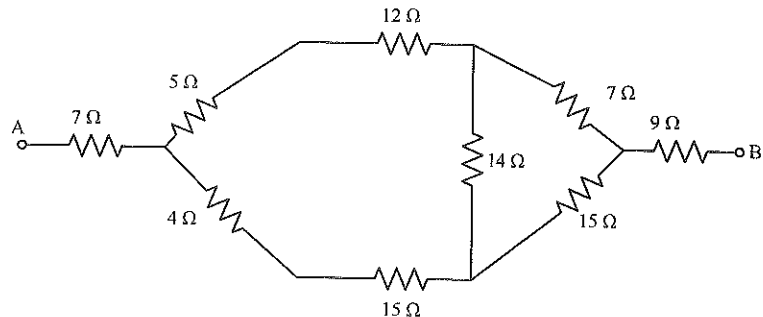


Fig. (b)

[THE END]



Class Listing

School of Electrical & Electronics Engineering

Samabula

Semester1

2016

EEE681 Electro - Technology

NL

StudentID	Name	Status	Mon	Sponsor	Outstanding Fee
Bachelor of Engineering (Electrical & Renewable Energy)					
2015131667	Albert Tavea Obed	ER			
2015131227	Cheryl Shirley	EA		Tertiary Education Loan Scheme (Existir	8,235.94
2014125603	Francis Takatavety	ER			
2015130724	Fredy Watec	ER			1,126.94
2015130523	Jayshil Kumar	EA		Tertiary Education Loan Scheme (Existir	7,209.00
2015131558	Jefferson Maeriuu	ER		Solomon Island Government - Full	7,253.00
2003002041	Mukesh Vishal Naidu	EA			
2013116184	Shaynal Shivikant Singh	ER			960.00
2016136777	Vinshay Nishal Nadan	ER			1,872.00
		9		Total Owing:	26,656.88
Bachelor of Engineering (Electronics & Instrumentatio					
2014124273	Alfred Leger	ER			
2015130899	Chanelle Kones	ER		Republic Of Vanuatu, Ministry of Educati	4,398.36
2015131193	Rizwan Ali Asgar	EA		Tertiary Education Loan Scheme 2015 -	7,253.00
2014119586	Vishal Anand Narayan	ER			2,400.00
		4		Total Owing:	14,051.36
Bachelor of Engineering (Telecommunication & Netwo					
2015131433	Billy Fito'o	ER			
2015131778	Fred Kwaokwaa Anisi	ER		Solomon Island Government - Full	7,253.00
2015131726	Ian Kiriau	ER		Solomon Island Government - Full	7,253.00
2015131754	Samuel Manakako	ER		Solomon Island Government - Full	7,253.00
2012003853	Shalvin Prakash	EA		Solomon Island Government - Full	7,253.00
		5		Tertiary Education Loan Scheme (Existir	
				Total Owing:	29,012.00
				Grand Total:	69,720.24
	Total Count:	18			

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EQP RECEIPT CHECKLIST FORM

Particulars	Details/Comments (To be filled by Unit Lecturer)	Tick if present on EQP (To be filled by exams staff)
Cover Page	✓	
Fiji National University with Logo	✓	
College	✓	
School	✓	
Program	✓	
Unit Code	✓	
Unit Name	✓	
Examination Period	✓	
Duration of Examination	✓	
Instructions	✓	
Total Number of Pages	✓	
Other Pages	✓	
Footer	✓	
Page Number	✓	
Unit Code	✓	
Examination Period	✓	
Last Page	✓	
The End	✓	
Overall		
Proper Print	✓	
Examination Requirements (FNU/E-1)	✓	
Moderator's Report (FNU/E-3)	✓	
ERRS (Class List)	✓	
Unit Coordinator/Principal Lecturer's Name	Dr. Anif Klean	

DISPATCHED BY (SCHOOL REP)

NAME: _____

SIGN: _____

DATE: _____

RECEIVED BY (EXAMS REP)

NAME: _____

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