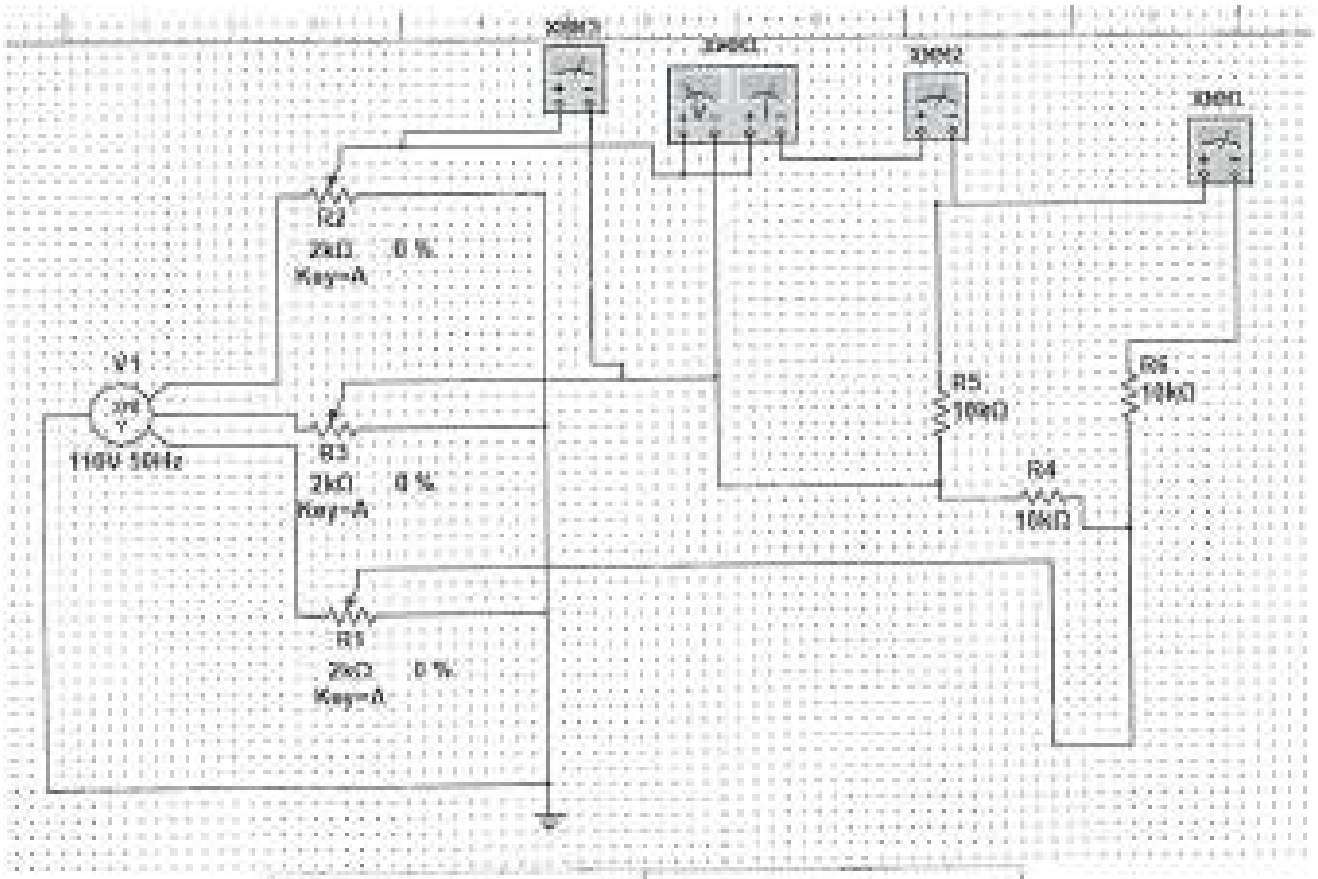
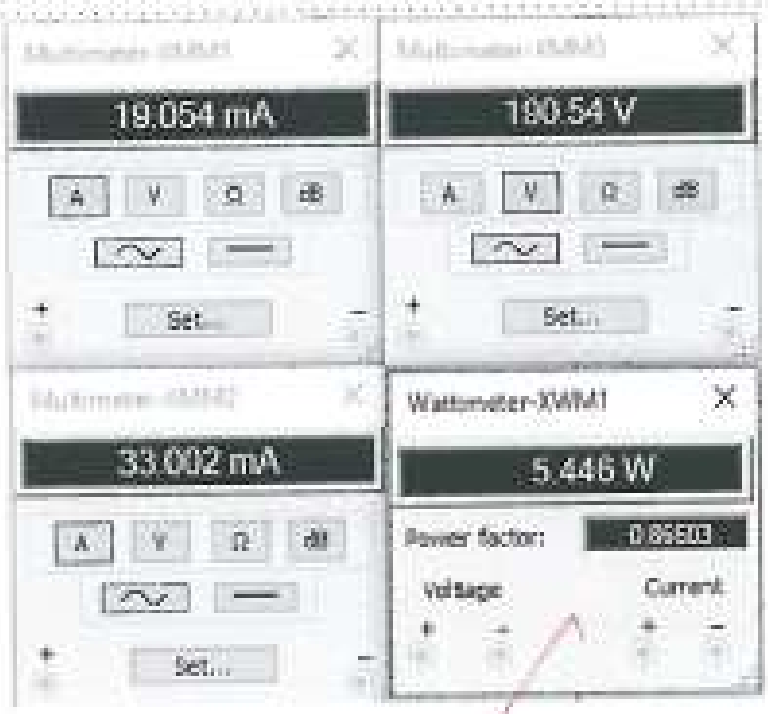
[redacted]


XWM3
XWM1
XWM2
XWM4
R2
2kΩ 0 %
Key=A
V1
110V 50Hz
R3
2kΩ 0 %
Key=A
R1
2kΩ 0 %
Key=A
R5
100Ω
R6
10kΩ
R4
10kΩ


19.054 mA
A
V
Ω
dB
Set...
190.54 V
A
V
Ω
dB
Set...
33.002 mA
A
V
Ω
dB
Set...
Wattmeter-XWM1
5.446 W
Power factor:
0.86503
Voltage
Current

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EE 202 – CIRCUIT THEORY II

MID TERM LAB EXAM

Grade
99/100

Name, Family Name: [redacted]

ID No.: [redacted]

Instructions:

- **Write your student ID number on the top of each page.**
- **Show all the details of your analysis and calculations on the blank page provided with this exam paper.**

Q1. Draw the circuit using Multisim using the Figure below, and record the values in the given Table. Use the potentiometer (2 KΩ) at minimum position, and use 10 KΩ resistors as Load resistors. **[CO_4, PI_2_16, SO_2]**

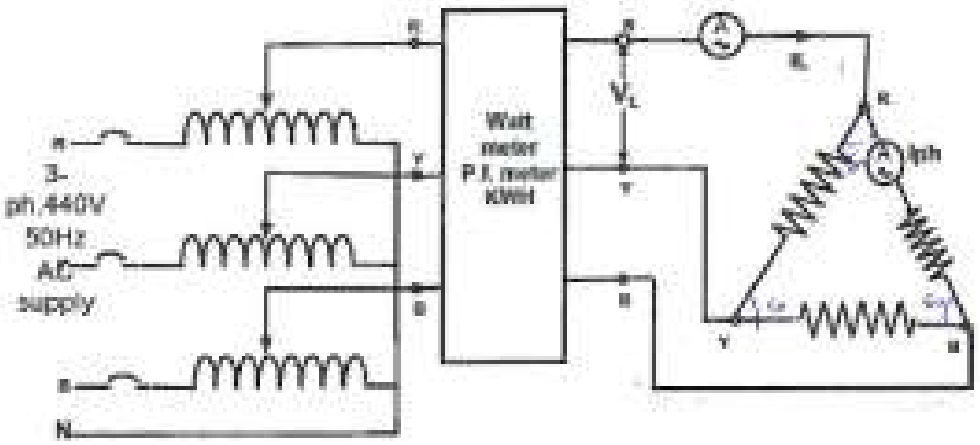

Figure 1

No.	Line Voltage V_L (Volts)	Line Current I_L (Amp)	Phase Current I_{ph} (Amp)	Ratio of Line to Phase Current (I_L/ I_{ph})	Power By Calculation $W=1.73*V_L*I_L*\cos\theta$ $\theta=30^\circ$ (Watts)	Power Calculation (Exp) (Watts)
110	[redacted]	33.02mA	19.05A	1.732	5.438 W	5.495 W
220	[redacted]	66.05A	38.10A	1.732	21.754 W	21.781 W
440	[redacted]	132.10mA	76.21mA	1.732	87.030 W	87.134 W

TABLE 1 (Delta Connected Load)

Sorry for that ^_^

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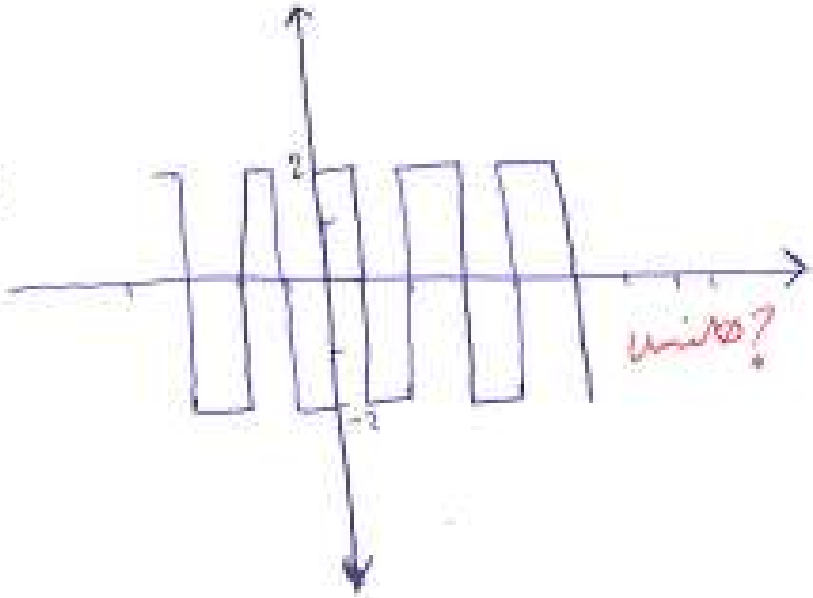
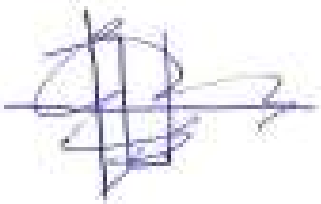
Q4. Draw square waveform, and show a) peak value b) peak to peak value, and c) time period on the waveform

- peak value
it's +2 or -2

- peak to peak
it's 4 form -2 to +2



- Tim period
it's one period and it's
~~peak~~ 2 peak value ~~added~~ so ~~on~~ peak + peak



Q5. What is the relationship of the inductive and capacitive reactance with frequency?

It's direct proportion in inductive with frequency so when the frequency increase the inductive will be increase also

It's reverse proportion in capacitive with frequency so when the frequency increase the capacitive will be decrease

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EE 202 – CIRCUIT THEORY II

Spring Semester 2016-2017

MIDTERM LAB EXAM

GRADING TABLE

Section No.: 1053

Name, Family Nam [redacted]

[CO_4, PI_2_16, SO_2]

Contents	Grade	Comments
Q1		
Circuit Wiring	25/25	
Circuit Functioning	15/15	
Line Voltage (measurement)	5/05	
Line Current (measurement)	5/05	
Phase Current (measurement)	5/05	
Power (measurement)	10/10	
Power (Calculation)	10/10	
Q2	5/05	
Q3	5/05	
Q4	9/10	
Q5	5/05	
Total 99	/100	

Instructor Full Name	Nathirulla Sheriff
Signature	
Date	02-11-2017

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Calculations

No. $W = 1.73 \times 190.529 \times 33.002 \times 10^{-3} \times \cos(\phi) = [redacted] = 5.438\ W$

2W $W = 1.73 \times 381.058 \times 66.061 \times 10^{-3} \times \cos(60) = 21.754\ W$

Ratio $\frac{I_L}{I_{ph}} = \frac{33.002\ mA}{19.053\ mA} = 1.732\ mA$

$\frac{I_L}{I_{ph}} = \frac{66.061}{38.105} = 1.732\ mA$

Q2. What is the relation between the phase and line current based on the Multisim workbench results?

The relation between I_L And I_{ph} is
$I_L = \sqrt{3}\ I_{ph}$ in y to Δ
And $I_L = I_{ph}$ in y to y

Q3. Do we get similar relation between line voltage and the corresponding phase voltage if the load is star connected?

Yes in (y to Δ) connected and No in (y to y)
$V_L = \sqrt{3}\ V_{ph}$ in y to Δ y
$V_L = V_{ph}$ in y to Δ