



COLLEGE OF ENGINEERING & TECHNOLOGY

Department : Electrical & Computer Control Engineering

Lecturer : Staff

Course : Electric Eng. Fundamental

Marks: 40

Course Code: EE 238

Time : 2 hours

Date : 12 / 1 / 2015

Final Exam

Answer the following questions:

1] For the circuit shown in Fig.1, find the current I using:

- Mesh current method.
- Node voltage method

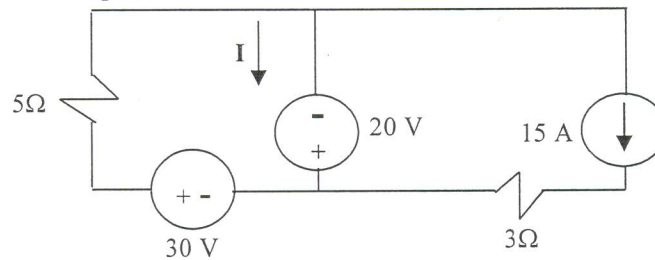


Fig.1

(10 marks)

2] For the circuit shown in Fig.1, find the voltage V_1 using **ONE** of the following two methods:

- Superposition method.
- Source transformation method.

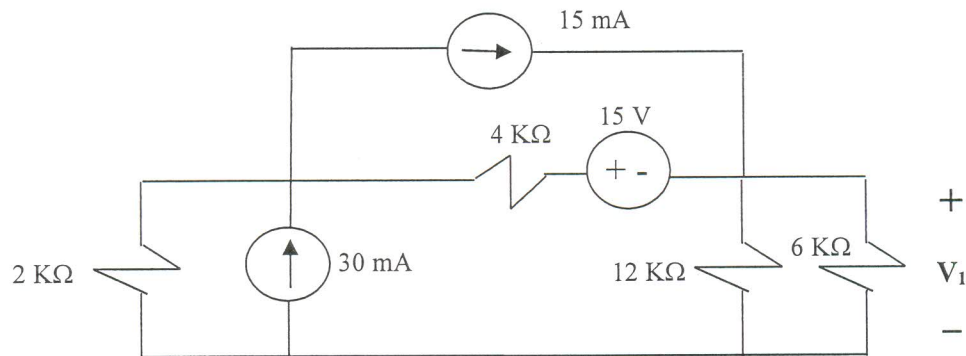


Fig.2

(8 marks)

Members of course Examination Committee:	Signature:	Date:
Lecturer: Prof. Dr. Amany Hanafy	<i>[Signature]</i>	31 / 12 / 2014
Course Coordinator : Prof. Dr. Samah El Safty	<i>[Signature]</i>	31 / 12 / 2014
Head of Department: Prof. Dr. Hamdy Ashour	<i>[Signature]</i>	31 / 12 / 2014

2] In the magnetic circuit shown in Fig.(3),

$BAFE = BCDE = 48 \text{ cm}$

$BE = 16 \text{ cm}$

And the cross section area of the core is 8 cm^2 . The relative permeability of the core material is 800. Calculate the ampere-turn required to produce a flux of 0.5 mwb in the central limbs.

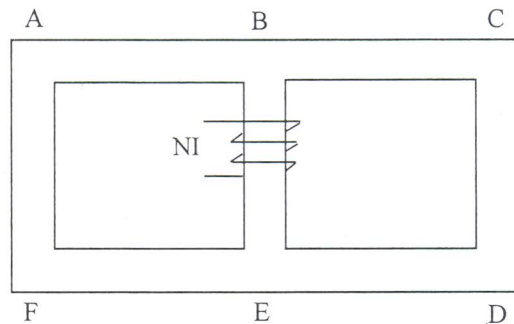


Fig.3

(10 marks)

3] a) Find the average value and the effective value of the voltage waveform shown in Fig.4.

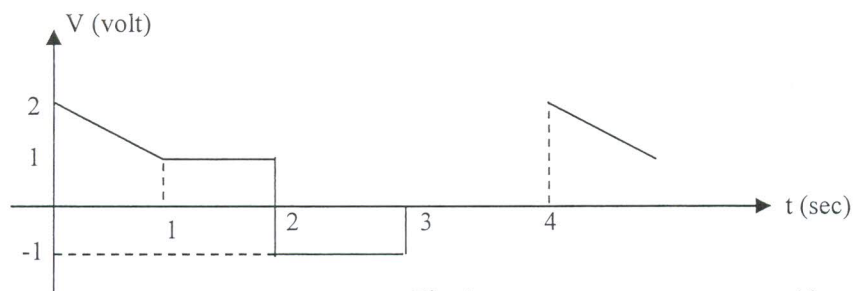


Fig.4

(6 marks)

b) For the circuit shown in Fig.5,

- i. Determine Z_T .
- ii. Find the current I in phasor form.
- iii. Calculate V_R , V_L and V_C in phasor form.
- iv. Find the average power P and the power factor of the circuit.

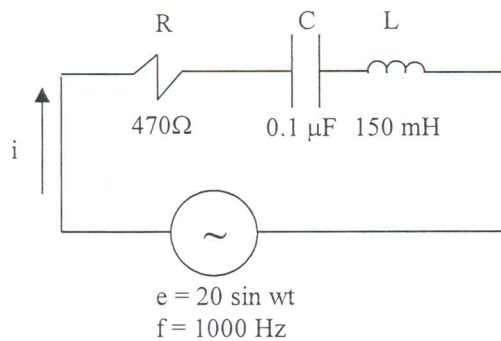


Fig.5

(6 marks)

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Lecturer: Prof. Dr. Amany Hanafy	<i>A. Hanafy</i>	31 / 12 / 2014
Course Coordinator : Prof. Dr. Samah El Safty	<i>S. El Safty</i>	31 / 12 / 2014
Head of Department: Prof. Dr. Hamdy Ashour	<i>H. Ashour</i>	31 / 12 / 2014