

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 : 27/5/2015

Final Exam

Answer the following questions:

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

- i. Mesh current method.
- ii. Node voltage method

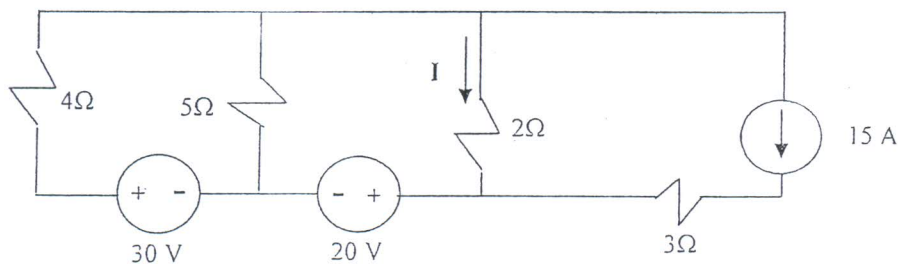


Fig.1

(10 marks)

2] For the circuit shown in Fig.2, find the voltage V using the source transformation method.

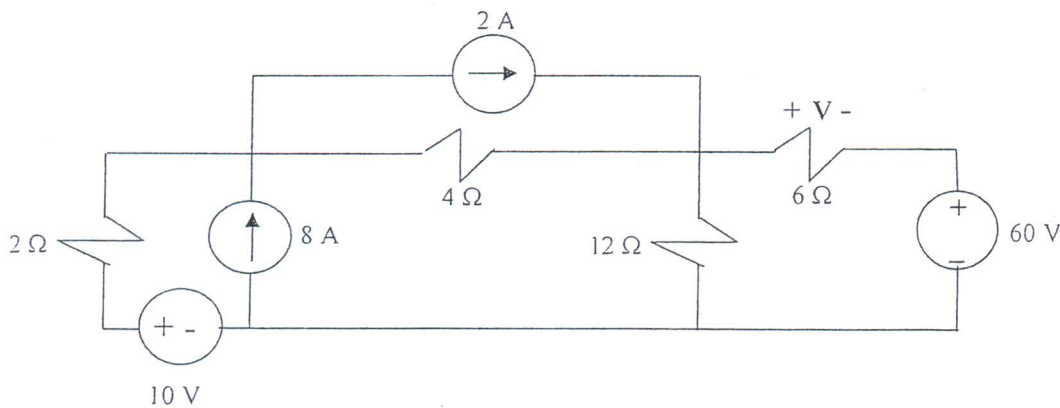


Fig.2

(10 marks)

Members of course Examination Committee:	Signature:	Date:
Lecturer: Prof. Dr. Amany Hanafy		27 / 5 /2015
Course Coordinator : Prof. Dr. Samah El Safty		27 / 5 /2015
Head of Department: Prof.Dr. Hamdy Ashour		27 / 5 /2015

3] In the magnetic circuit shown in Fig.(3), the core length is 48 cm and the air gap length is 16 mm. 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 0.6 mwb in the air gap.

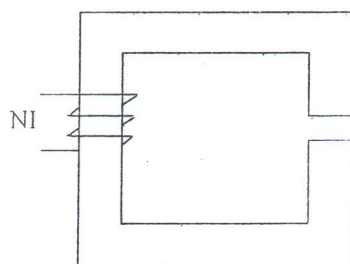


Fig.3 (8 marks)

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

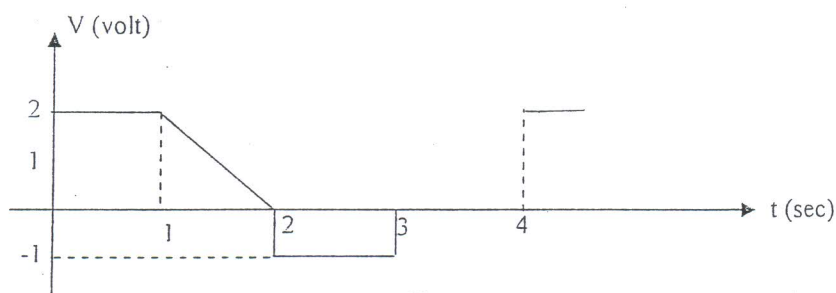


Fig.4 (6 marks)

b) For the unknown circuit shown in Fig.5, $e(t) = 10 \cos(\omega t) \text{ V}$ and $i(t) = 2 \sin(\omega t + 53.22) \text{ A}$. Find:

- i. The circuit impedance Z in the simplest series form.
- ii. The average power P .
- iii. The power factor of the circuit and state whether it is leading or lagging.

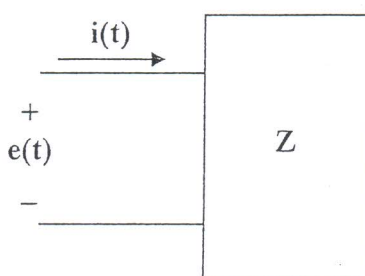


Fig.5 (6 marks)

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