



# COLLEGE OF ENGINEERING & TECHNOLOGY

Department : Electrical & Computer Control Engineering  
 Lecturer : Dr. M. Abdel-Rahim  
 Course : Network Analysis  
 Course Code : EE 332  
 Date : 24 / 5 / 2015

Marks : 40  
 Time : 2 hours

## Final Exam

Answer the following questions:-

1- For the circuit shown in fig.(1), let  $v_s(t) = 10 e^{-5t} \cos(3t + 30^\circ)$  V and  $i_s(t) = 5e^{-5t} \sin 3t$  A.

- (i) Using the concept of the complex frequency, find the phasor value  $V_o$ .  
 (ii) Find the time domain expression  $v_o(t)$ .

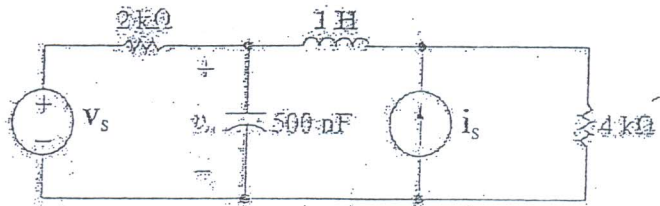


fig.(1)

b) For the circuit shown in fig.(2).

- (i) Find  $|Z_{in}(\sigma)|$  as a ratio of polynomials of  $\sigma$ .  
 (ii) Determine all the critical frequencies of  $Z_{in}(\sigma)$ .  
 (iii) Sketch  $|Z_{in}(\sigma)|$  versus  $\sigma$ .

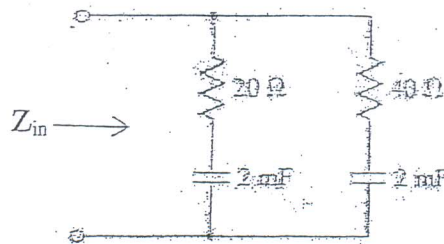


fig. (2)

(10 marks) (AI)

2- Draw the Bode amplitude and phase plots for the following transfer function

$$H(s) = \frac{5 \times 10^3 (s + 100)}{s(s + 50)(s^2 + 5s + 100)}$$

(6 marks) (AI)

Members of course Examination Committee:	Signature:	Date:
Lecturer: Dr. M. Abdel Rahim	M. Abdel Rahim	17/5/2015
Course Coordinator : Prof. Samah El Safty	Safty	17/5/2015
Head of Department: Prof. Hamdy Ashour	Hamdy	17/5/2015