



(Pages : 2)

A – 6489

Reg. No. :

Name :

**Fifth Semester B.Tech. Degree Examination, October 2016
(2013 Scheme)
13.503 : INDUSTRIAL ELECTRONICS (MP)**

Time : 3 Hours

Max. Marks : 100

PART – A

Answer **all** questions. **Each** question carries **2** marks.

1. Convert $(A72E)_{16}$ to octal.
2. Represent $(-17)_{10}$ in 1's compliment form.
3. Draw the V-I characteristics of SCR and explain.
4. What are the applications of dielectric heating ?
5. Draw the diagram of a sequence timer.
6. Define variable area meter.
7. List out 4 addressing modes of 8051.
8. Explain the function of CPL instruction.
9. What is phase cross over frequency ?
10. What do you understand by transfer function of a system ? **(2×10=20 Marks)**

PART – B

Answer **any one** question from **each** Module. **Each** question carries **20** marks.

Module – I

11. Explain the working and V-I characteristics of IGBT with neat diagrams. **20**
12. Explain a 3 bit synchronous down counter using D flip-flop and draw the waveforms obtained in the output of each flip-flops. **20**

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Module – II

- 13. i) Explain the different types of resistance welding schemes. 10
- ii) How is a sequence timer implemented ? Explain with neat diagrams. 10
- 14. Explain the different methods used for the measurement of level electrically. 20

Module – III

- 15. Explain the architecture of 8051 with neat diagram. 20
- 16. i) In a semester, a student has 6 courses. The marks of the student are stored in RAM locations 47H onwards. Find the average marks and output it on port 1. 10
- ii) Write a program to add an array of 8 bit binary numbers. 10

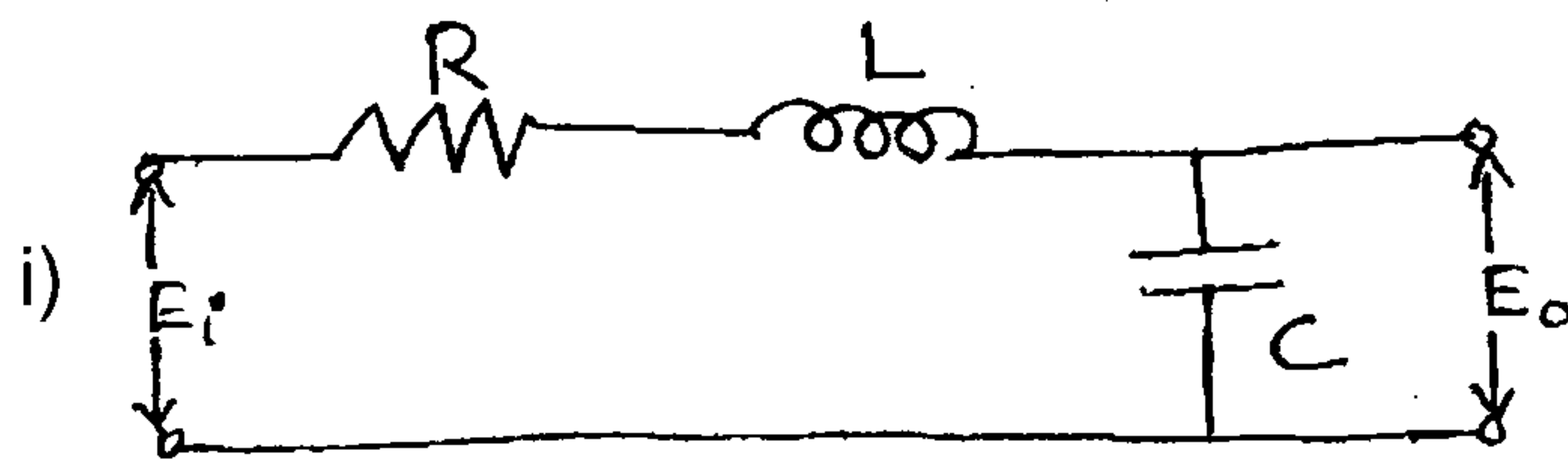
Module – IV

17. The open loop transfer function of a system is given by

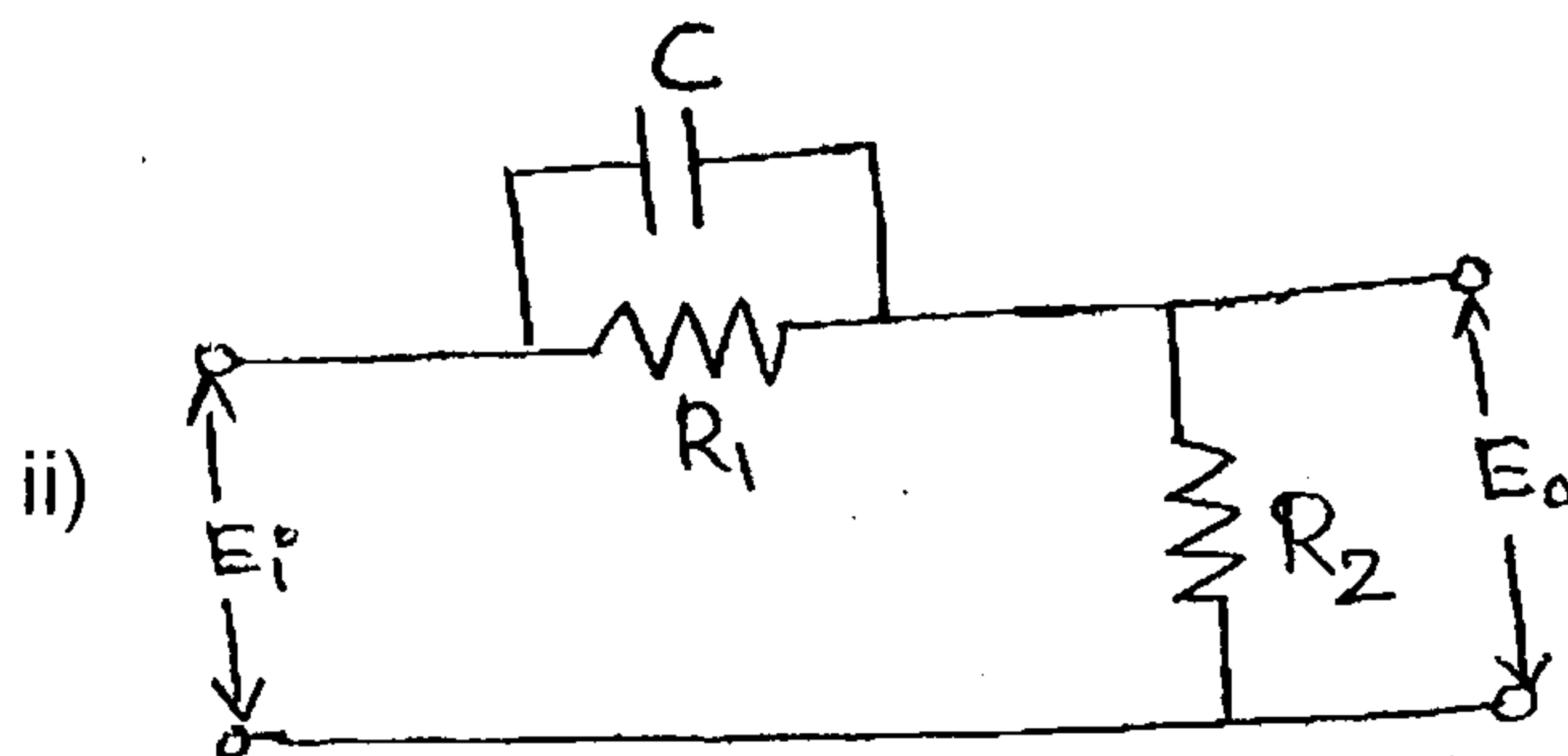
$$G(s) = k(s + 1)/(s^3 + as^2 + 2s + 1)$$

This system oscillates with freq. w , if it has poles at $s = \pm jw$ and has no poles in right half of s plane. Determine the values of 'k' and 'a' so that the system oscillates at a frequency of 2 rad/sec, using RH criteria. 20

18. Determine the transfer function of following electrical systems



10



10

