Reg. No. : ....

Name : ....

Fifth Semester B.Tech. Degree Examination, November 2014
(2008 Scheme)
### 08.504 : INDUSTRIAL ELECTRONICS (MP)

Time : 3 Hours

Max. Marks : 100

PART – A

(Answer **all** questions).

(10×4=40 Marks)

1. Explain the working of a triac.
2. What is the principle of dielectric heating ?
3. Discuss the working of IGBT.
4. List a two industrial measurement applications of photoelectric devices.
5. Draw the block diagram of data acquisition system.
6. Explain actuators.
7. Describe the structure of internal RAM of 8051.
8. Derive the expression for peak overshoot for a second order system for a unit step input.
9. Obtain the transfer function of the following system.
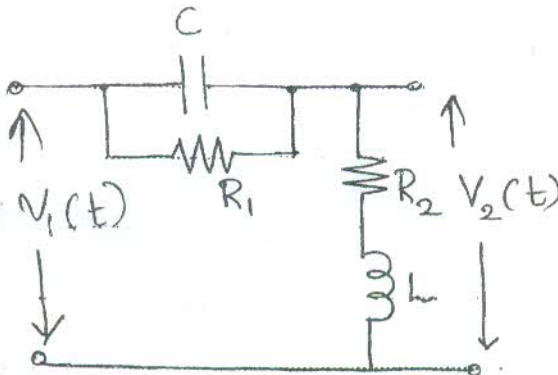
10. State Routh Hurwitz Stability criterion.

PART – B

(Answer **any one** question from **each** Module).

Module – I

(20×1=20 Marks)

11. Explain :
    a) Avalanche photodiode.
    b) Working and characteristics of SCR.

12. a) With relevant waveforms, explain the working of bridge converters.

    b) Explain the principle of induction heating. List a few applications.

Module – II   (20×1=20 Marks)

13. a) Explain memory organization in 8051 microcontroller.

    b) Write a program in 8051, to divide two 8 bit numbers.

14. a) Write notes on LEDs and laser diodes.

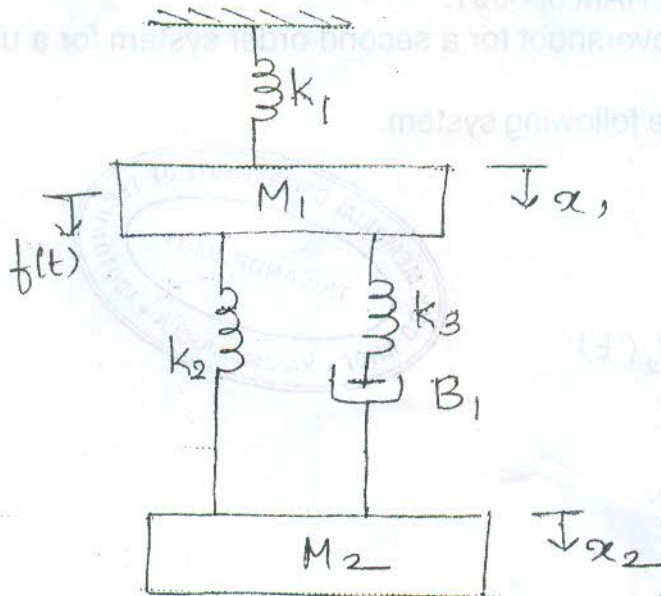   b) Explain the architecture of 8051.

Module – III   (20×1=20 Marks)

15. a) Determine the range of K for stability of unity feedback system whose open

    loop transfer function is $G(s) = \dfrac{K}{s(s+1)(s+2)}$.

    b) For the function, $G(s) = \dfrac{5(1+2s)}{(1+4s)(1+0.25s)}$, draw the bode plot.

16. a) Derive the expression for the transfer function of the following system.

    b) A unity feedback control system has an open loop transfer function,

    $G(s) = \dfrac{10}{s(s+2)}$. Find the response of the system for a unit step input. Also

    find the percentage overshoot and rise time of the system.