



B.E/ B.Tech DEGREE END SEMESTER EXAMINATIONS, NOV/DEC 2012
B.E- Computer Science Engineering (FULL TIME)
EE - 9262/ Electrical Engineering and Control Systems
IV - SEMESTER (REG: 2008)

Time : 3 Hours

Max.Mark : 100

Answer ALL Questions
Part-A(10*2 =20 Marks)

12

1. State and explain kirchhoff's laws.
2. What is the condition for resonance?
3. What are the different types of single phase induction motor?
4. Write the torque equation of D.C motor and explain each term.
5. Define transfer function.
6. Explain mason's gain formula.
7. Gain margin for the given system is -20 dB. Comment about the stability of the system.
8. Mention the corner frequency for $1/(1000+s)$.
9. What are the drawbacks of transfer function approach?
10. Write the solution for the state equation of the given system without input.

Part B-(5*16=80 Mark)

11. Obtain the state model for the following.(Figure .1)

(16)

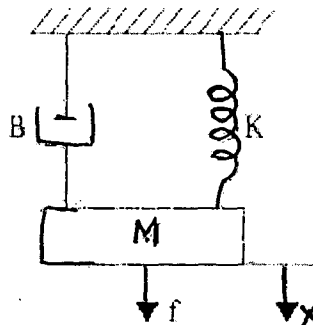


Figure. 1

- 12.a (i) Derive the EMF equation of transformer. (10)
(ii) Explain the characteristics of DC shunt motor. (6)
Or
- 12.b. Explain why single phase induction motor is not self starting and the various starting methods of single phase induction motor. (16)

13.a. Obtain the transfer function using Signal Flow Graph method. (See Figure 2)

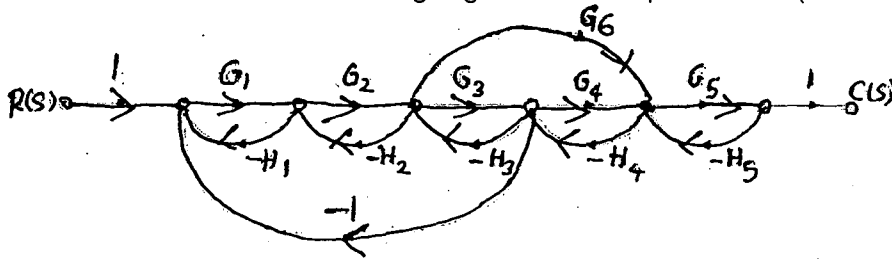


Figure 2

(16)

Or

13.b. Obtain C/R using Block diagram reduction. (See Figure 3)

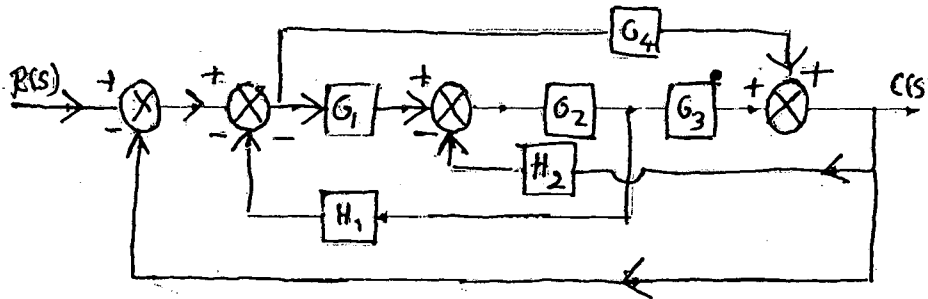


Figure 3

(16)

14.a. Draw the bode plot for the given open loop transfer function $G(s)H(s)$.

$$G(s)H(s) = \frac{2000(s+1)}{s(10+s)(40+s)} \quad (16)$$

Or

14.b. Obtain the time response of second order under damped system when subjected to unit step input. (16)

15.a. A 230V, 60Hz a.c. supply is applied to a coil of 10 mH inductance and 25 Ω resistance connected in series with a 10 μ F capacitor. Calculate impedance, current, power factor angle, power factor and power consumed. [4+4+2+2+4]

OR

15.b Find V_a using superposition theorems (Figure .4)

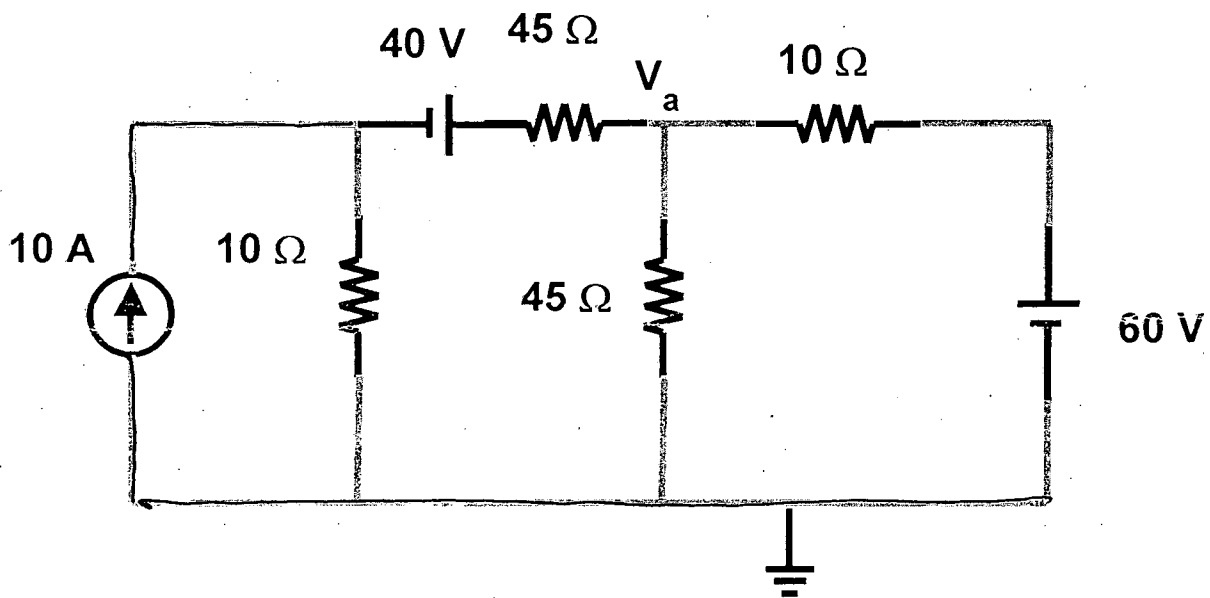


Figure .4