5th Sem / Branch : Power Electronics
Sub. : Basic Control Systems

Time : 3Hrs.   M.M. : 100

SECTION-A

Note: Multiple choice questions. All questions are compulsory   (10x1=10)

Q.1   To which of the following does a major part of the automatic control theory ability?
a)   time variant system
b)   Casual system
c)   Linear time invarient system
d)   None linear system

Q.2   What is traffic light system?
a)   Closed loop system   b)   Open loop system
c)   Both A & B   d)   None

Q.3   What is the gain margin of the second order system?
a)   Infinite   b)   O
c)   1   d)   2

Q.4   In which of the following systems can multiple signals be used?
a)   Non feedback   b)   Feed back
c)   Feed forward   d)   None

Q.23   Discuss the basic elements of servo mechanism.

Q.24   What is AC position control system? Explain.

Q.25   Explain the mason's gain formula.

Q.26   What do you mean by Signal flow graph? Explain it.

Q.27   What is the difference between 1st order and 2nd order system.

Q.28   What is the difference between open loop and closed loop Control system (any five)

Q.29   Explain force voltage analogy.

Q.30   Explain the magnetic amplifier.

Q.31   Discuss transient and steady state response.

Q.32   Write a short note on the root locus.

Q.33   What is the use of semilog paper in the Bode plot.

Q.34   Explain the transfer function of DC servo motor.

Q.35   Define Gain margin and phase margin.

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions.   (2x10=20)

Q.36   Explain the manually controlled closed loop system with block diagram.

Q.37   Explain block diagram reduction rules in detail.

Q.38   Write a short note on the followings-
a)   Routh Hurwitz criterion for stability
b)   Ampledyne

Q.5 Routh Hurwitz criterion is used to determine

a) Peak response of the system

b) Time Response of the system.

c) Absolute stability of the system

d) Roots of characteristic equation graphically.

Q.6 Which of the following motor rotates in discrete angular steps?

a) Servo motor

b) DC motor

c) Stepper motor

d) Linear induction motor

Q.7 The rotational speed of a given stepper motor depend on

a) Magnitude of supply voltage

b) Polarity of stator current

c) Magnitude of stator current

d) Step pulse frequency

Q.8 The nature of transient response is revealed by

a) Sine wave   b) Cos wave

c) Tan wave   d) Tost signal

Q.9 Step signal is the signal whose value is

a) 1 for all values greater than zero

b) Indeterminate at Zero

c) It is Zero for time less than zero

d) All of the mentioned

Q.10 Magnetic amplifier is used for

a) Voltage amplification

b) Power amplification

c) Current amplification

d) Frequency amplification

SECTION-B

Note: Objective type questions. All questions are compulsory. (10x1=10)

Q.11 Define settling time.

Q.12 Define process.

Q.13 What is 2nd order control system?

Q.14 Define linear system.

Q.15 What is error constant.

Q.16 Define sustained oscillations.

Q.17 Define self loop.

Q.18 What is Laplace trans form.

Q.19 Define Electrical system.

Q.20 What is standard test signal?

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)

Q.21 Draw the diagram at stepper motor & explain in brief.

Q.22 Explain the closed loop control system with diagram.