Q.28 Explain automatically controlled closed loop system with an example.

Q.29 Write a short note on Routh array criterion.

Q.30 Draw and explain speed torque characteristics of Servomotor.

Q.31 Explain bode plot.

Q.32 Explain basic elements of control system.

Q.33 Explain working principle of tachometer.

Q.34 Write a short note on nonlinear control system.

Q.35 Explain the working principle of stepper motor.

SECTION-D

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

Q.36 Determine the time response of first order system subjected to step input.

Q.37 Write eight differences between linear and nonlinear control system.

Q.38 Write a short note on any two:

a) Block diagram reduction techniques

b) Servomechanism

c) Time response specifications

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SECTION-A

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

Q.1 Synchro works on the principle of

a) Electromagnetic induction

b) Faraday's law

c) Electrostatic principle

d) None of these

Q.2 Laplace transform of a unit impulse signal is given by

a) One b) zero

c) 2s d) 3s

Q.3 Transfer function of an open loop control system is given by

a) C(s)/R (s) b) C(s) = 0

c) R(s) =0 d) C(s) -R (s)

Q.4 For a stable system

a) G.M =0

b) G.M and P.M both are positive

c) P.M=0

d) None of these

Q.5 For underdamped system, damping ratio should be

a) zero b) less than zero

c) less than one d) one

Q.6 Intersection of root locus branch with imaginary axis given by

a) Routh criteria b) Bode plot

c) Signal flow graph d) None of these

Q.7 Semi log paper is used in

a) Bode plot b) Root Locus

c) Block diagram d) None of these

Q.8 Mason's gain formula is used to find

a) Transfer function b) Poles

c) Zeros d) Gain Margin

Q.9 Root locus is_____about real axis

a) Symmetrical b) Parallel

c) Perpendicular d) None of these

Q.10 Accurate and reliable output is possible with

a) Open loop control system

b) Closed loop control system

c) Second order system

d) None of these

SECTION-B

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

Q.11 Give two applications of Servomotor.

Q.12 Tell transfer function of closed loop control system.

Q.13 Define loop gain in signal flow graph.

Q.14 Give two examples of closed loop system.

Q.15 Name two standard test signals.

Q.16 Tell two methods to find stability of a system.

Q.17 Feedback element is denoted by H(s) (True/False).

Q.18 Define transfer function.

Q.19 Write two types of control system.

Q.20 Define steady state error.

SECTION-C

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

Q.21 Write any five applications of stepper motor.

Q.22 Write a short note on root locus technique.

Q.23 Explain mason's gain formula in detail.

Q.24 Write five differences between open and closed loop control system.

Q.25 Describe characteristics of potentiometer.

Q.26 Explain electrical system in detail.

Q.27 Write about underdamped and overdamped system.