Q.25 Write a short note on an electrical system.

Q.26 Explain any two time domain specifications.

Q.27 Explain the working principle of Potentiometer.

Q.28 Explain basic elements of Servomechanism.

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

Q.30 Write five applications of stepper motor.

Q.31 Explain with example automatically controlled closed loop system.

Q.32 Write any three block diagram reduction techniques.

Q.33 Write a short note on underdamped system.

Q.34 Write a short note on transfer function.

Q.35 Write five applications of servomotor.

SECTION-D

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

Q.36 Write seven differences between linear and non-linear control system.

Q.37 Explain root locus technique with the help of an example.

Q.38 Derive the time response of first order system subjected to unit step input.

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Time : 3Hrs. M.M. : 100

SECTION-A

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

Q.1 In an open loop system_____ is present.

a) Voltage b) Current

c) Feedback d) None of these

Q.2 Tachometer is used to measure

a) Speed b) Voltage

c) Current d) None of these

Q.3 For an overdamped system

a) Damping ratio < 1 b) Damping ratio > 1

c) Damping ratio = 1 d) None of these

Q.4 If two blocks are in series, then resultant gain will be _____ of two block gains

a) Product b) Addition

c) Division d) Subtraction

Q.5 Laplace transform of unit impulse signal is given by

a) 1 b) 2

c) 1/3S d) None of these

Q6 Root locus is symmetrical about real axis (True / False)

Q.7 Synchro works on the principle of electromagnetic induction. (True/False)

Q8 Error detector element in a control system gives

a) R(s) + E(s) b) R(s) * E(s)

c) R(s) - B(s) d) None of these

Q.9 Time needed for the response to reach 50% of the final value is termed as

a) Rise time b) Peak time

c) Settling time d) None of these

Q.10 The root locus separates at a point between two open loop poles, the point is called as

a) Breakaway point b) Critical point

c) Shift point d) None of these

SECTION-B

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

Q.11 Describe peak time.

Q.12 Define Laplace transform.

Q.13 Define tachometer.

Q.14 Write two applications of Servomotor.

Q.15 Describe overdamped system.

Q.16 Describe loop gain.

Q.17 Define closed loop control system.

Q.18 Define steady state error.

Q.19 Write two methods to find stability.

Q.20 Define synchro.

SECTION-C

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

Q.21 Explain torque-speed characteristics of Servomotor.

Q.22 Write a short note on bode plot.

Q.23 Write five differences between open and closed loop control system.

Q.24 Explain mason's gain formula in detail.