Q.26 Explain basic elements of Servo mechanism.

Q.27 Explain Routh array criterion with an example.

Q.28 Write a short note on tachometer.

Q.29 Write any three rules for construction of root locus.

Q.30 Write a short note on bode plot.

Q.31 Write a short note on overdamped system.

Q.32 Derive the time response of first order system subjected to impulse input.

Q.33 Write five differences between linear and non-linear system.

Q.34 Explain characteristics of potentiometer.

Q.35 Write a short note on mechanical system.

SECTION-D

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

Q.36 Explain time domain specifications of second order system with diagram.

Q.37 Explain the working of stepper motor. Also write five applications of stepper motor.

Q.38 Give seven differences between open and closed loop control system.

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Instrumentation & Control
Subject:- Basics of Control System

Time : 3Hrs. M.M. : 100

SECTION-A

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

Q.1 A system is said to be linear, if it obeys the principle of

a) Homogeneity b) Superposition

c) Both a and b d) None of these

Q.2 In an open loop system feedback is present (True/False)

Q.3 Servomotor can operate on

a) DC b) AC

c) Both a and b d) None

Q.4 A potentiometer is a

a) Voltage divider b) Current divider

c) Single phase motor d) None of these

Q.5 The Routh array criteria gives

a) Gain margin b) Stability

c) Phase margin d) Transfer function

Q.6 Feedback element is denoted by

a) H(S) b) E(S)

c) R(S) d) None of these

Q.7 The breakaway point of the root locus are the solution of

a) dk/ds=0 b) G(S)=0

c) H(S)=0 d) None

Q.8 Time required for the response to reach and stay within a specified tolerance band is known as

a) Rise time b) Delay time

c) Peak time d) Settling time

Q.9 By which of the following elements mechanical translational system are obtained?

a) Mass element b) Spring element

c) Dashpot d) All of these

Q.10 Transfer function is defined as the ratio of output to the input in

a) Laplace transform b) Z-transform

c) Fourier transform d) None of these

SECTION-B

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

Q.11 Define Potentiometer.

Q.12 Define Laplace transform.

Q.13 Describe ramp signal.

Q.14 Define linear system.

Q.15 Describe underdamped system.

Q.16 Write two examples of closed loop control system.

Q.17 Describe non-linear system.

Q.18 Define forward path

Q.19 Define synchro

Q.20 Define stability.

SECTION-C

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

Q.21 Write a short note on manually controlled closed loop system.

Q.22 Explain different methods to find transfer function.

Q.23 Write five applications of Servomotor.

Q.24 Explain graphically, any three techniques for block diagram reduction.

Q.25 Write a short note on signal flow graph.