CLASS: ME   SEMESTER : III
BRANCH: EEE   SESSION : MO/19

SUBJECT: EE601 PROCESS MEASUREMENT AND CONTROL

TIME: 3 HOURS   FULL MARKS: 50

INSTRUCTIONS:
1. The question paper contains 5 questions each of 10 marks and total 50 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
4. Before attempting the question paper, be sure that you have got the correct question paper.
5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.

Q.1(a) Explain the objective of the process control system. [5]
Q.1(b) With an example explain the self-regulation and servomechanism in control system. [5]

Q.2(a) A temperature sensor has a transfer function of 5 mV/°C with an accuracy of ±1%. Find the possible [5]
range of transfer function when reading of 27.5 mV result from sensor.
Q.2(b) [5]
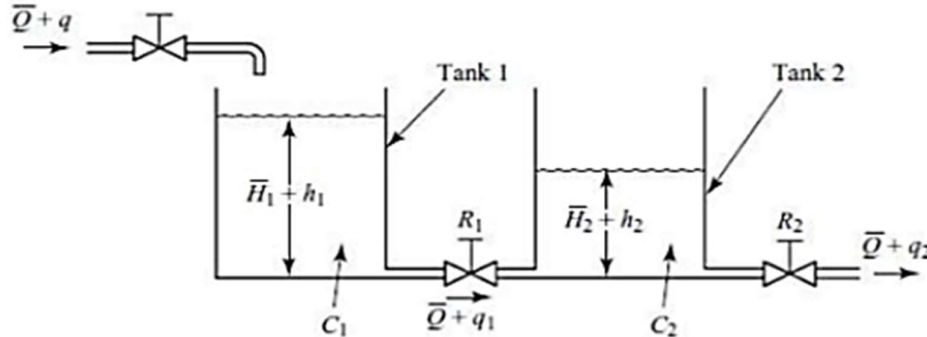
Find the transfer function for the coupled tank.
Q.3(a) Find the system accuracy of the flow process if transducer transfer function is (10 mV/m^3/s) ±1.5%. and [5]
signal conditioning system transfer function is 2mA/mV±.05%.
Q.3(b) With proper example explain the Feedforward controller and its advantages. [5]

Q.4(a) A sensor resistance change linearly from 100 Ω to 180 Ω for temperature change to 20°C to 120°C. find [5]
the equation for R(sensor resistance).
Q.4(b) What is ratio controller, how it works? [5]

Q.5(a) The open loop transfer function of unity negative feedback system is given by G(s) = $\frac{K(s+2)}{(S+1)(S-7)}$ for [5]
k > 6 the stability criteria of the open loop configuration and the close loop configuration of the system
find the stability.
Q.5(b) Explain the adoptive controller. [5]