Eighth Semester B.E. Degree Examination, June/July 2017
Control Engineering and Automation

Time: 3 hrs.   Max. Marks: 100

Note: *Answer FIVE full questions, selecting*
at least TWO questions from each part.

PART – A

1 a. Reduce the block diagram as shown in Fig.Q1(a) to its simplest possible form and find its closed loop transfer function.
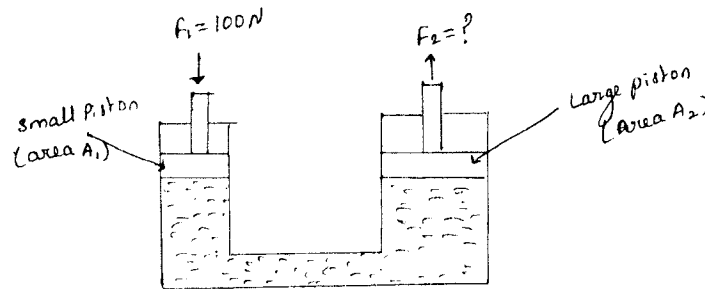

Fig.Q1(a)   (14 Marks)

   b. Write real time application of temperature control system.   (06 Marks)

2 a. By applying Routh criterion, discuss the stability of the closed loop system as a function of K for the following loop transfer function

$$G(s)H(s) = \frac{K(s+1)}{s(s-1)(s^2 + 4s + 16)}$$

(12 Marks)

   b. Write feedback characteristics of control system.   (08 Marks)

3 a. With a neat sketch, explain stack type controlled principle.   (12 Marks)
   b. Write short notes on pneumatic amplifier or relay and with a neat sketch, explain non-bleed type of relay.   (08 Marks)

4 a. Describe with sketch the functioning of a valve positioned. What are advantages of using of a valve positioner?   (12 Marks)
   b. Write the arrangement of nozzle flapper with the help of neat sketch.   (08 Marks)

PART – B

5 a. Write the brief note about force balance transducer.   (12 Marks)
   b. With a neat sketch, explain electronic force balance transducer.   (08 Marks)

6 a. Explain steam pressure controller with neat sketch.   (07 Marks)
   b. With a neat sketch, explain working of fuel oil temperature control system. (07 Marks)
   c. Explain working of two element type water control with sketch.   (06 Marks)

7 a. With a neat sketch, explain working of Jacket water cooling system.   (10 Marks)
   b. With a neat sketch, explain working of fuel vatic cooling water control. (10 Marks)

8 a. What is PLC? Explain basic components of the PLC with advantages.   (08 Marks)
   b. Write the comparison between traditional control and PLC.   (06 Marks)
   c. How does microcontroller works?   (06 Marks)

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