Srinivas Institute of Technology
Library, Mangalore

USN | | | | | | | | | | |

10MR82

Eighth Semester B.E. Degree Examination, June/July 2019
Control Engineering and Automation

Time: 3 hrs. Max. Marks:100

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

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

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.

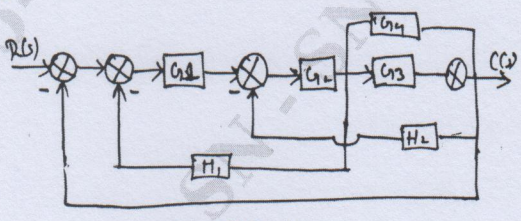

Fig Q1(a) **(12 Marks)**

b. Write the transfer function of Electrical System. **(08 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 the feedback characteristics of control system. **(08 Marks)**

3 a. Write short notes on pneumatic amplifier or relay and with neat sketch, explain non-bleed type of relay. **(10 Marks)**

b. Explain the stacked type controller with neat sketch. **(10 Marks)**

4 a. Write with neat sketch of Nozzle Flapper and explain. **(10 Marks)**

b. With a neat sketch explain working of valve positioner. **(10 Marks)**

PART – B

5 a. Write the brief note about force balance transducer. **(10 Marks)**

b. With a neat sketch, explain electronic force balance transducer. **(10 Marks)**

6 a. With a neat sketch, explain steam pressure controller. **(10 Marks)**

b. Explain working of two – element type of water controller with neat diagram. **(10 Marks)**

7 a. With neat sketch, explain working principal of Jacket water cooling system. **(10 Marks)**

b. With the help of neat diagram, write the working of fuel valve cooling water control. **(10 Marks)**

8 a. What is PLC? Explain the basic components of the PLC with advantages. **(10 Marks)**

b. How does the micro-controller works? **(10 Marks)**

* * * * *