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17MR82

Eighth Semester B.E. Degree Examination, July/August 2021
Control Engineering and Automation

Time: 3 hrs. Max. Marks: 100

Note: ***Answer any FIVE full questions.***

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.

1 Obtain the overall transfer function of the block diagram. (Ref. Fig.Q.1) **(20 Marks)**

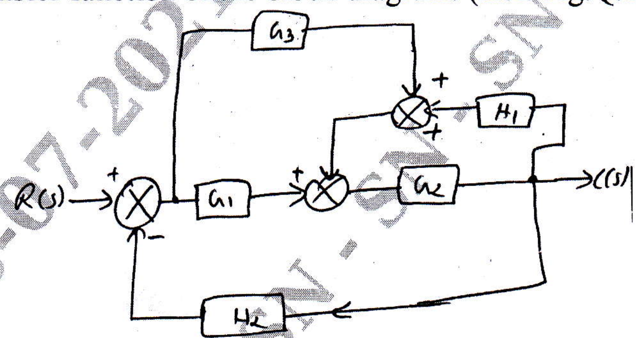

Fig.Q.1

2 Determine the transfer function for the signal flow using Manson's gain formula. (Ref. Fig.Q.2). **(20 Marks)**

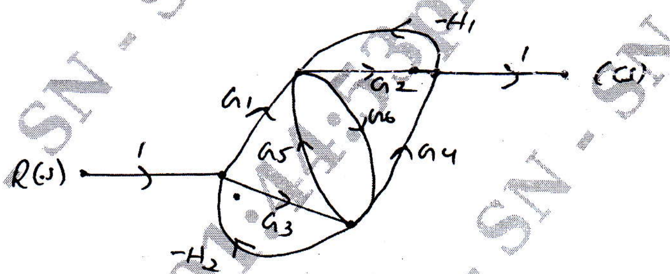

Fig.Q.2

3 Obtain the transfer function for mechanical system. (Ref. Fig.Q.3) **(20 Marks)**

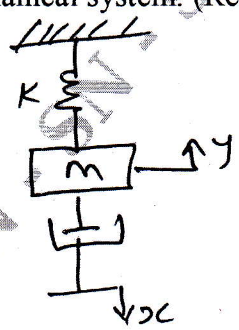

Fig.Q.3

4 State and explain steady state error coefficient K_p, K_v, K_a. **(20 Marks)**

5 Sketch the root locus plot for the system whose open loop transfer function is given as

$$G(S)H(S) = \frac{K}{S(S+2)(S^2+8S+20)}$$ **(20 Marks)**

6 Sketch the bode plot for unity feedback system, given as

$$G(S)H(S) = \frac{10}{S(1+S)(1+0.02S)}$$ **(20 Marks)**

7 a. Write a note on Blackout Prevention. **(10 Marks)**

b. Explain the type of governor and explain any one in detail. **(10 Marks)**

8 Explain the following with a neat sketch:

a. Taut wire position reference.

b. Super short base line system. **(20 Marks)**

9 Explain the following work done in bridge console for

a. Position Reference

b. Power Reference. **(20 Marks)**

10 Explain with a block diagram of horizontal plane controller. **(20 Marks)**

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