Total number of printed pages-43

3 (IE 605) PINC

CENTRAL INS

2019

PROCESS INSTRUMENTATION AND CONTROL

Paper: IE 605

Full Marks: 100

Time: Three hours

The figures in the margin indicate full marks for the questions.

Answer any five questions.

- 1. (a) Draw a neat diagram of a Temperature measurement system and identify the functional elements of the measurement system from sensing to display indication.
 - (b) Discuss on the performance parameters used for selection of a Transducer.

10

Contd.

- 2 (a) Explain the different forms of controller action. 10
- (i) Proportional
- *(ii)* Proportional Integral and Derivative.
- *(b)* Explain with a neat diagram and flow valves. characteristics the following control 10
- (i) Equal percentage valve
- (ii)Linear opening valve.
- ယ description. non-alcoholic sector, along with the process manufacturing of beverages in the alcoholic Discuss the automation used AB JORARY &
- 4. (a) industry. control system in the food processing Elaborate the importance of closed loop SALISMI TREMASS
- 6 Write down the detailed descriptions of the following tags in the P&I diagram.
- (ii)PI
- TIC

- (iii) LY
- (iv) FX
- 3 XS
- (vi) HST
- (νü) DAHH

(viii) FRRC

- (ix) PDT
- (x) AIC
- (a) Comment on the stability of sixth power criterion. system using Routh-Hurwitz stability characteristics equation of a control

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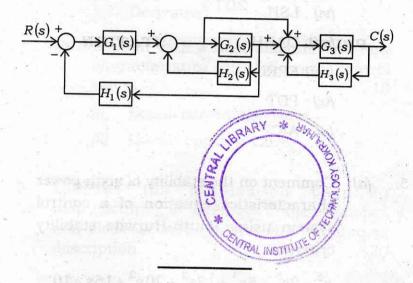
$$s^6 + 2s^5 + 8s^4 + 12s^3 + 20s^2 + 16s + 16$$

- 10
- *(b)* Sketch the Root Locus of a unity transfer function feedback control system with open loop

$$G(s) = \frac{K}{(s)(s+1)(s+3)}$$
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6. Reduce the system shown in figure by using rules of Block Reduction technique and compare the single transfer function using signal flow graph. 10+10



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