

**BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, PILANI**  
**Control Systems Lab (EEE F245) [1<sup>st</sup> Semester, 2023-2024]**  
**Comprehensive Exam**

Max Time: 45 min

Max Marks: 20

Date: 29/11/23

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**Q5.** Consider the closed loop temperature control system with proportional control. Set temperature at  $50^{\circ}\text{C}$  and consider P setting at 3,6,9 and compare the three responses by plotting on a single graph (consider time in minutes and temperature in  $^{\circ}\text{C}$ ). Comment on your observation.

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**Q6.** Consider the closed loop temperature control system. Set temperature at  $70^{\circ}\text{C}$ .

i) Set  $P = 4$  and obtain the response.

ii) Set  $P = 4$  and  $I = 6$  and again obtain the response.

Compare the two responses by plotting on a single graph (consider time in minutes and temperature in  $^{\circ}\text{C}$ ) and comment on your observation.