Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_\_

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**End Semester Examination – Nov/Dec – 2018**

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| **Code :** | **12EI219** | **Duration :** | **3hrs** |
| **Sub. Name :** | **PROCESS DYNAMICS AND CONTROL** | **Max. marks :** | **100** |

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| **Q. No.** | **Questions** | **Marks** |
| **PART-A(10X1=10 MARKS)** | | |
| 1. | Draw the P&I diagram for pneumatic supply line. | 1 |
| 2. | Write the significance of mathematical modelling. | 1 |
| 3. | Give an application for Two position controller. | 1 |
| 4. | Suggest a suitable controller for temperature process. | 1 |
| 5. | Define: Tuning of Controllers. | 1 |
| 6. | State the concept of order of a system. | 1 |
| 7. | Identify the need of a plug in a control valve. | 1 |
| 8. | Suggest the need for positioners. | 1 |
| 9. | Expand: CSTR | 1 |
| 10. | Mention the application of distillation column in process industry. | 1 |

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| **PART B(5 X 3= 15 MARKS)** | | |
| 11. | Define: Degrees of Freedom. | 3 |
| 12. | Analyze the concept of Integral Windup. | 3 |
| 13. | List the various performance criteria. | 3 |
| 14. | Mention the types of valves. | 3 |
| 15. | Differentiate between cascade control and split range control. | 3 |

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| **PART C(5 X 15= 75 MARKS)** | | | |
| 16. |  | Obtain the mathematical model of two non-interacting tanks. | 15 |
| (OR) | | | |
| 17. |  | Determine the mathematical modeling of a mercury thermometer. | 15 |
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| 18. |  | Narrate the characteristics of various modes of PID controller. | 15 |
| (OR) | | | |
| 19. |  | Suggest suitable controllers for Level, Pressure and Flow process with justification. | 15 |
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| 20. |  | Analyze how the controller is tuned using Process reaction curve method. | 15 |
| (OR) | | | |
| 21. |  | Differentiate between the open loop and closed loop tuning method of Ziegler Nichol. | 15 |
|  |  |  |  |
| 22. |  | Distinguish between the Inherent and installed valve characteristics. | 15 |
| (OR) | | | |
| 23. |  | Explain the concept of Cavitation and flashing in control valves. | 15 |
|  |  |  |  |
| 24. |  | Analyze the concept of boiler drum level control using advanced control schemes. | 15 |
| (OR) | | | |
| 25. |  | Apply the concept of ratio control in air-fuel control circuit. | 15 |