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



**End Semester Examination – Nov / Dec – 2019**

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|  |  |  |  |
| **Code :** | **17EI3008** | **Duration :** | **3hrs** |
| **Sub. Name :** | **SYSTEM IDENTIFICATION AND ADAPTIVE CONTROL** | **Max. Marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. |  | Discuss the various steps involved in system identification using a flowchart. | CO1 | 20 |
| **(OR)** | | | | |
| 2. |  | Highlight the features of the following parametric transfer function models.  i) ARX model  ii) ARMAX model  iii) Equation error model  iv) Output error model  v) Box-Jenkins Model | CO1 | 20 |
|  |  |  |  |  |
| 3. |  | Analyze the concept of recursive least square algorithm. | CO2 | 20 |
| **(OR)** | | | | |
| 4. |  | Write short notes on the following :  i) Impulse response analysis  ii) Step-response analysis  iii) Frequency response using Correlation method  iv) Noise representation and time –invariant Kalman Filter | CO2 | 20 |
|  |  |  |  |  |
| 5. |  | Analyze the concept of non linear identification using Neural Network and Fuzzy Logic. | CO3 | 20 |
|  |  |  |  |  |
| **(OR)** | | | | |
| 6. |  | Summarize the various direct and indirect method of system identification concepts. | CO3 | 20 |
|  |  |  |  |  |
| 7. |  | Explain any two schemes of adaptive control. | CO4 | 20 |
| **(OR)** | | | | |
| 8. |  | Describe the different approaches to self tuning regulators. | CO4 | 20 |
|  | | **Compulsory**: |  |  |
| 9. | a. | Narrate the application of adaptive control in distillation column. | CO5 | 10 |
| b. | Analyze how adaptive control schemes be employed in Robotic arm. | CO5 | 10 |