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



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

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| **Code :** | **17EI2021** | **Duration :** | **3hrs** |
| **Sub. Name :** | **INSTRUMENTATION AND CONTROL IN PAPER INDUSTRIES** | **Max. Marks :** | **100** |

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

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Discuss about the concept of Mechanical Pulping. | CO1 | 5 |
| b. | Illustrate the working of chemical recovery process used to recover pulp with the flow diagrams. | CO1 | 15 |
| **(OR)** | | | | |
| 2. | a. | Elaborate the construction and working of a Kraft mill with a neat layout. | CO1 | 16 |
| b. | List out the different raw materials used in paper making. | CO1 | 4 |
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| 3. | a. | Elaborate the contruction and working of solid flow measurement method used in paper industries. | CO2 | 10 |
| b. | Explain the working of electrical temperature detectors used in paper making. | CO2 | 10 |
| **(OR)** | | | | |
| 4. | a. | Demonstrate the various density measurement methods used in paper industries. | CO2 | 6 |
| b. | With necessary equations and diagram, describe the working of electromagnetic flow meter in detail. | CO2 | 14 |
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| 5. | a. | Discuss the Yankee dryer temperature control in detail with a neat flow diagram. | CO3 | 15 |
| b. | State the importance of control valves in paper industry. | CO3 | 5 |
| **(OR)** | | | | |
| 6. |  | Mention the various types of control valves used in paper industry. Illustrate the working of any four control valves in detail with necessary block diagrams. | CO3 | 20 |
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| 7. | a. | Describe the working of white liquor flow control. | CO4 | 10 |
| b. | Explain the working of Digester liquor feed pump controller with necessary diagrams. | CO4 | 10 |
| **(OR)** | | | | |
| 8. | a. | Describe the working of brown stock water level control with a neat sketch. | CO4 | 10 |
| b. | With necessary diagrams, demonstrate the experiment for dissolving tank density control in paper industry. | CO4 | 10 |
|  | | **Compulsory**: |  |  |
| 9. |  | Illustrate a robot based automatic guided vehicle to transport materials in the shop floor of paper manufacturing industries. | CO5 | 20 |