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

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

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| **Code :** | **14EI2024** | **Duration :** | **3hrs** |
| **Sub. Name :** | **POWER PLANT INSTRUMENTATION** | **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 in detail about the process involved in thermal power generation. | CO1 | 14 |
| b. | Explain the photovoltaic method of conversion in solar energy generation. | CO1 | 6 |
| (OR) | | | | |
| 2. | a. | Explain the working of a Nuclear Power plant with necessary diagrams. | CO1 | 12 |
| b. | Elaborate on the operation of control rooms present in the thermal power plant with a neat sketch. | CO1 | 8 |
|  |  |  |  |  |
| 3. | a. | Describe the techniques used to analyze the impurities present in the feed water. | CO2 | 10 |
| b. | Explain the level measurement process in a boiler drum with a suitable diagram. | CO2 | 10 |
| (OR) | | | | |
| 4. | a. | Explain water flow measurement in the following configuration.  i. DPT below pipeline ii. DPT above the pipeline | CO2 | 10 |
| b. | Describe the working of CT and PT with necessary diagrams. | CO2 | 10 |
|  |  |  |  |  |
| 5. | a. | Give an outline on the measurement of steam flow in power plants. | CO2 | 10 |
| b. | Derive the expression for current to voltage converter. | CO2 | 10 |
| (OR) | | | | |
| 6. | a. | Explain the external and internal feed water treatment techniques for removing the impurities present in the boiler feed water. | CO2 | 12 |
| b. | Suggest a suitable instrument to measure the heating value of fuel and explain its working. | CO2 | 8 |
|  |  |  |  |  |
| 7. | a. | Describe the pollution gas monitoring system using optical method. | CO2 | 10 |
| b. | Discuss the water side temperature control using an attemperator. | CO3 | 10 |
| (OR) | | | | |
| 8. | a. | Explain the concept of chromatography and discuss its types with necessary diagrams. | CO2 | 12 |
| b. | Give an outline about continuous control modes with its response graphs. | CO3 | 8 |
|  | |  |  |  |
|  | | **Compulsory**: |  |  |
| 9. | a. | Elaborate on shell temperature monitoring and control. | CO3 | 8 |
| b. | Explain the role of DCS in power plant automation. | CO3 | 12 |