

Code No: **R41106****R10****Set No. 1****IV B.Tech I Semester Supplementary Examinations, February/March - 2018****POWER PLANT INSTRUMENTATION****(Electronics and Instrumentation Engineering)****Time : 3 hours****Max. Marks: 75****Answer any Five Questions****All Questions carry equal marks**

- 1 a) Give a brief description of Nuclear power generation scheme. [8]
b) Explain PI diagram of boiler process. [7]
- 2 a) Derive the expression for deflecting torque of a Moving Iron Ammeter. Explain the shape of scale. [8]
b) A permanent magnet moving coil instrument has a coil dimensions 15mm × 12mm. The flux density in the gap is $1.8 \times 10^{-3} \text{ Wb/m}^2$ and the spring constant is $0.14 \times 10^{-6} \text{ Nm/rad}$. Determine the number of turns required to produce an angular deflection of 90 degrees when a current of 5 mA is flowing through the coil. [7]
- 3 a) What is the role of dust monitor in thermal power plants? [5]
b) Explain how steam temperature and feed water temperature measurements are performed. What are the sources of error in measurement? [10]
- 4 a) What do you mean by super heater in thermal power plants? [5]
b) Explain in detail with neat sketches air fuel ratio control system used in power plants? [10]
- 5 a) Discuss the importance of computers in power plants? [5]
b) Explain the spray and gas recirculation control system used in power plants? [10]
- 6 a) What is the necessity of cooling of generator? [6]
b) Discuss about the lubricating oil temperature control. [9]
- 7 Explain the following
a) Hydrogen purity meter
b) Spectrum analyzer [15]
- 8 a) Describe the principle and working of a smoke detector with a neat sketch. [7]
b) Explain a brief notes on the pollution control equipments. [8]