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**Question Paper Code: 31954**

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2016

Elective

Electronics and Instrumentation Engineering

01UEI916 - INSTRUMENTATION FOR POWER PLANTS

(Regulation 2013)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. Mention the renewable and non-renewable source of energy.
2. Sketch the P & I diagram of boiler.
3. List the parameters involved in measuring electrical measurements in power plants.
4. What is the use of dust monitor?
5. Why do we need to analyze oxygen content in flue gas?
6. Define pH.
7. Point out the effects of feed water pressure variation in drum level control.
8. What are the various methods used for steam temperature control?
9. How to control the speed of turbine?
10. List the different methods of dry cooling.

PART - B (5 x 16 = 80 Marks)

11. (a) With the layout diagram of a typical thermal power plant, explain the working of each part and main flow circuits. (16)

Or

- (b) Brief about the importance and control in power generation with the classification of instruments in a power plants and objectives of instrumentation and control. (16)

12. (a) Discuss about the boiler feed water circulation with neat diagrams. (16)

Or

- (b) With help of diagrams, explain the water and steam pressure measurements and water and steam temperature measurements in detail. (16)

13. (a) With neat sketch, explain the construction and working of High Pressure Liquid Chromatography (HPLC) with advantages and disadvantages. (16)

Or

- (b) (i) With neat diagram, explain the construction and working of dissolved oxygen analyzer. (8)

- (ii) Illustrate the pollution monitoring instruments in detail. (8)

14. (a) Explain the combustion control in air-fuel circuits, with neat diagrams. (16)

Or

- (b) Describe the application of Distributed Control System (DCS) in power plants in detail. (16)

15. (a) With neat diagram of elements in the steam turbine, explain each block in detail. (16)

Or

- (b) Explain the controls in lubrication systems with pressure / flow control, temperature control and tank level control in detail. (16)